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ABSTRACT

This packet includes games and activities concerning aerospace education for the very young. It is designed to develop and strengthen basic concepts and skills in a non-threatening atmosphere of fun. Activities include: (1) "The Sun, Our Nearest Star"; (2) "Twinkle, Twinkle, Little Star, How I Wonder Where You Are"; (3) "Shadows"; (4) "The Earth and the Moon"; (5) "Eclipses"; (6) "Flight"; (7) "The Stars In the Sky"; (8) "The Planets and the Solar System"; (9) "Rockets"; (10) "Rocket Ship Match"; (11) "Three-Two-One-Blast-Off!"; (12) "Astronauts"; (13) "Exploring the Moon"; (14) "Footprints On the Moon"; (15) "Living in Space/The Space Shuttle"; (16) "Space Shuttle Concentration"; and (17) "Books for Young Children". (KHR)

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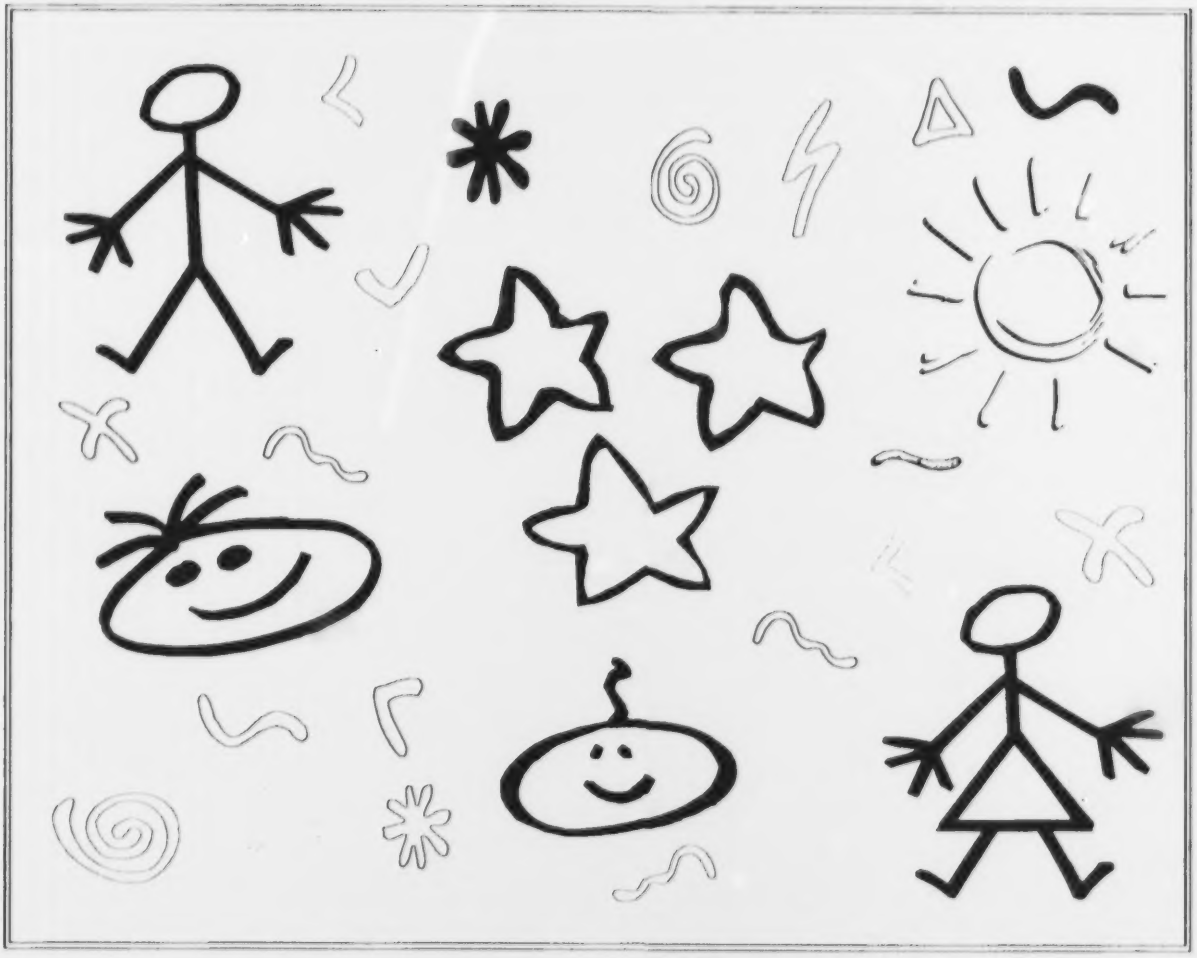

For the Very Young

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Aerospace for the Very Young

A COMPENDIUM OF AEROSPACE-THEMED ACTIVITIES AND GAMES FOR EARLY CHILDHOOD

These games and activities are intended for use with young children. They are designed to help develop and strengthen basic concepts and skills in a non-threatening atmosphere of fun. The guidelines for each game or activity may be altered to address specific objectives; these are meant to give you a starting point from which to create activities to best meet the individual needs of your children.

Children who cannot complete the activity alone should be assisted by the instructor in order to allow them to experience success with the activity. Group activities that lend themselves to children working together can provide opportunities for peer assistance; make use of these occasions to help children learn to work together and to support each other.

Recognize the short attention span of very young children. Use only a few pieces at a time in an activity or game; keep the children involved. A great many pieces, or too many things to do at once, can overwhelm young children. A good rule is to keep it simple and keep it fun! Recognize that you may need to repeat the same game or activity many times before all children succeed. It is also very likely that children will ask to repeat games or activities that they have enjoyed or have been successful in completing. Honor the requests and treasure the times of early childhood!

AEROSPACE EDUCATION...

...that branch of general education concerned with communicating knowledge, skills, and attitudes about aerospace activities and the total impact of air and space vehicles upon society.

CIVIL AIR PATROL'S AEROSPACE EDUCATION PROGRAM...

...is designed to provide all American citizens with an understanding and an appreciation of the importance of aviation and space exploration to our society and to our national security. It provides the aerospace education necessary to ensure the development of aerospace and the maintenance of aerospace supremacy.

Prepared by

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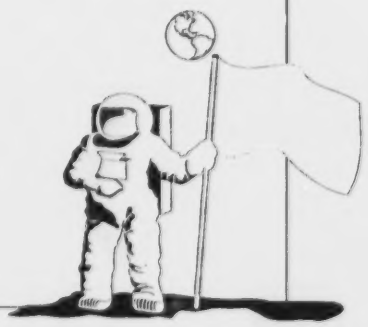
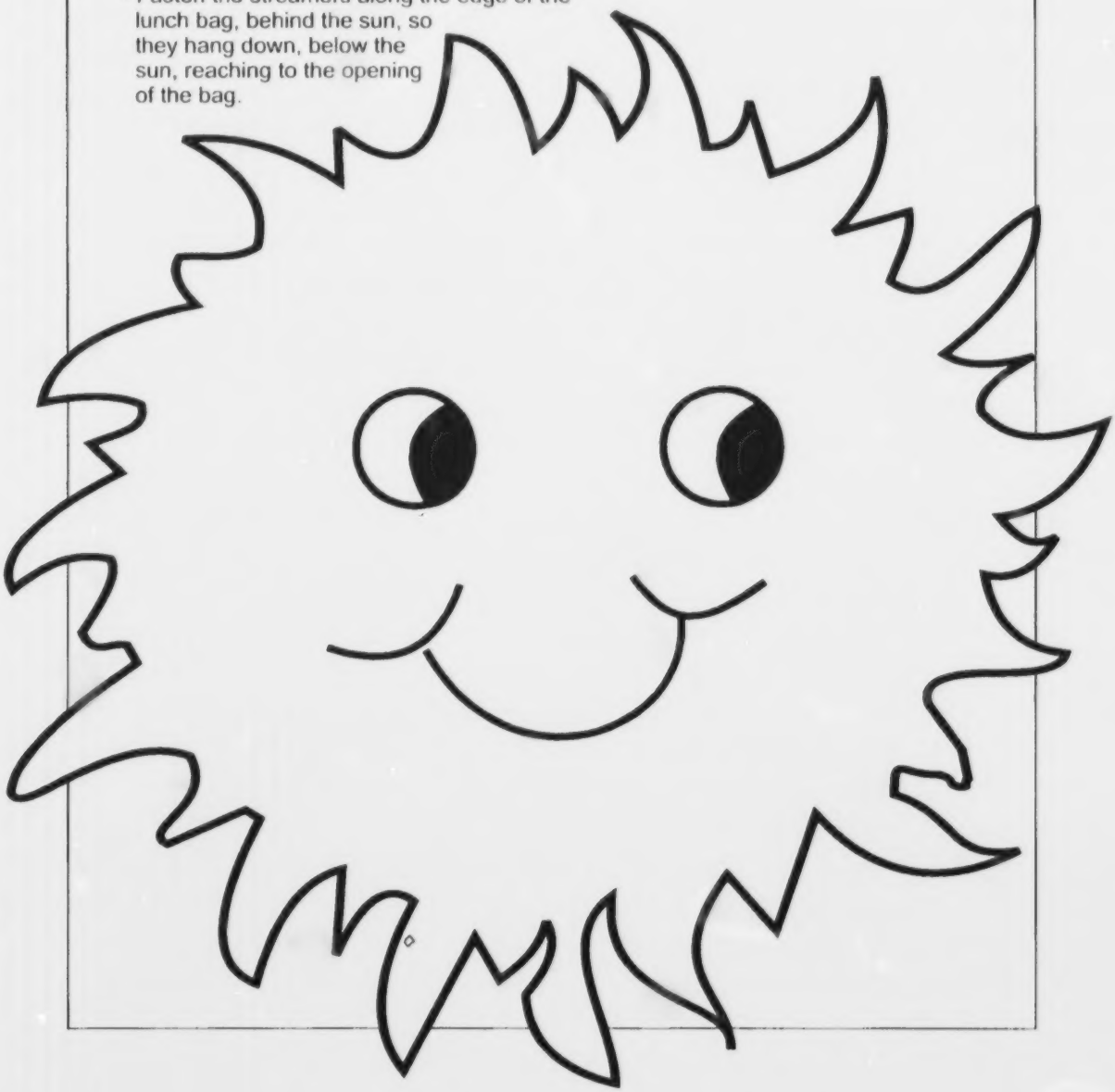


THE SUN, OUR NEAREST STAR

Make a solar cooker.
- Line a shoe box with aluminum foil.
- Push a skewer through both short sides of the box.
- Put a hot dog on the skewer and cover the box with plastic wrap.
- Put the box in the sun; use the energy of the sun to cook the hot dog.

Make "Mr. Sun" puppets.
- Using a paper lunch bag, paste the sun face to the bottom of the bag.
- Cut three one-foot strips of yellow crepe paper into thirds, making nine one-foot long streamers.
- Fasten the streamers along the edge of the lunch bag, behind the sun, so they hang down, below the sun, reaching to the opening of the bag.



TWINKLE, TWINKLE, LITTLE STAR, HOW I WONDER WHERE YOU ARE

Make star sticks.

- Using the pattern, prepare a half-page (two star circles side by side) for each child.
- Have children color and/or decorate their stars.
- Cut out around the outer edge of the page (along the solid lines); laminate each rectangle.
- Make the star sticks by folding the rectangle in half along the dotted line.
  - Sandwich a craft stick in between (like a lollipop stick); center the stick and attach securely.
  - Glue the two edges of the open side together.
- Use the star sticks to reinforce positional words. These include:

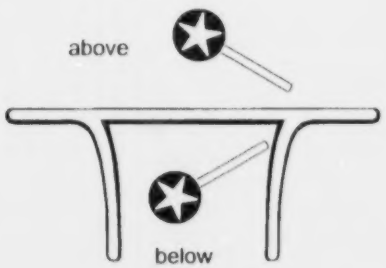
above	beside	in back of	left	over
behind	between	in front of	next to	right
below	front	inside	on top of	through
beneath				under

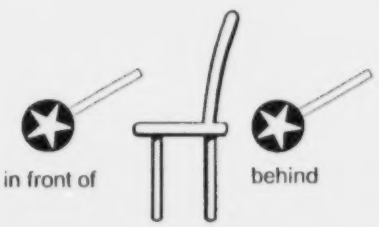
To use the star sticks:

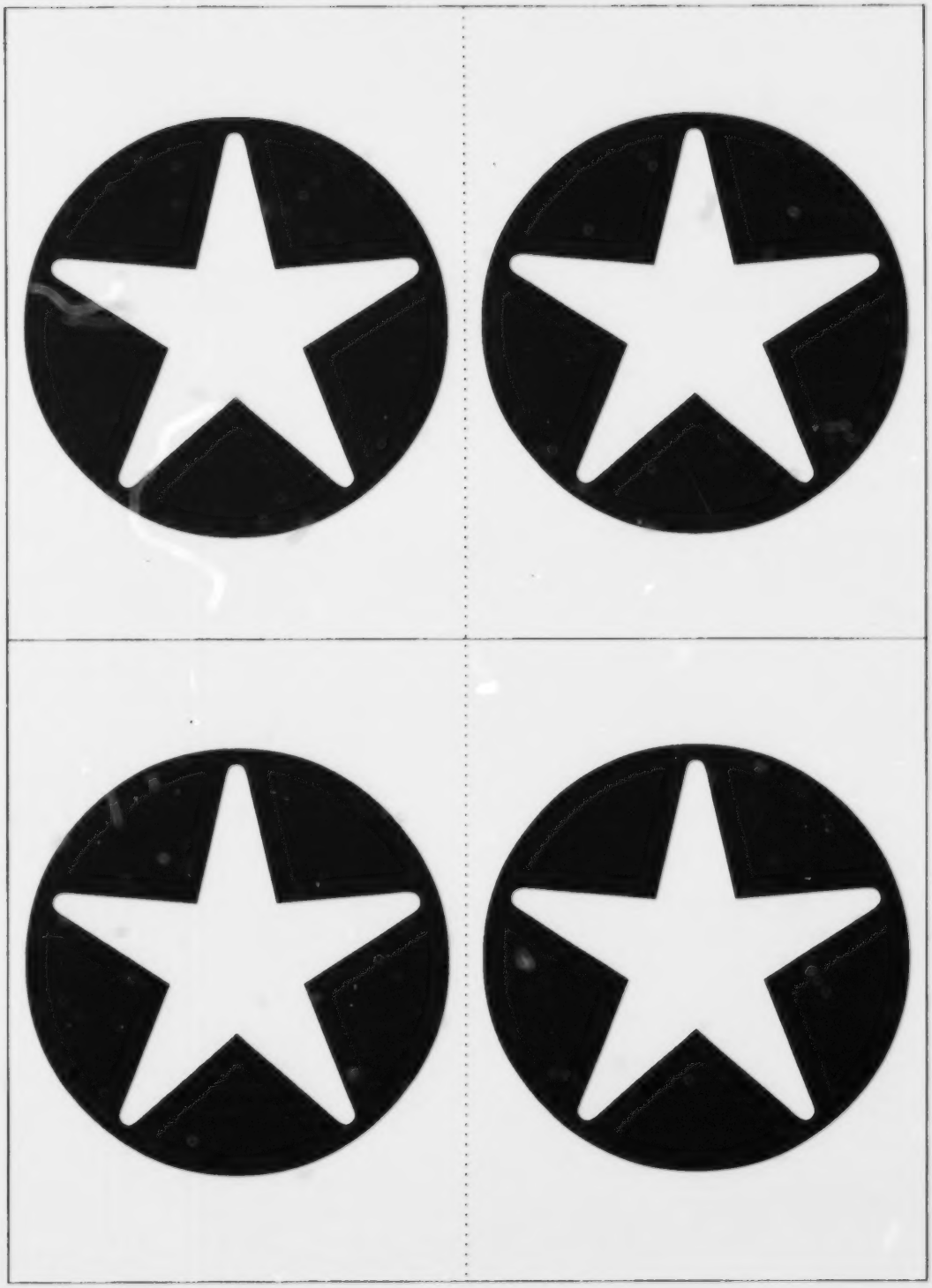
- Children sing (or say),
  "Twinkle, twinkle, little star
  How I wonder where you are."
- The teacher tells the children where the star is; the children hold their star sticks there.
  - The teacher might say,
    "The star is under your chair." (Children hold the star under their chair.)
    "The star is over your right shoulder." (Children hold the star over their right shoulder.)
    " The star is in your left shoe." (Children slide star stick handle into shoe.)
  - For variety, the teacher may use a star stick and ask the children to tell him or her where the star is located.

Tips:

For very young children, begin by telling the child where the star is located as you place it there. The child will use his or her star stick to copy the position of the star and will repeat the words. Then the teacher asks, "Where is the star?" and helps the children to make the proper reply.







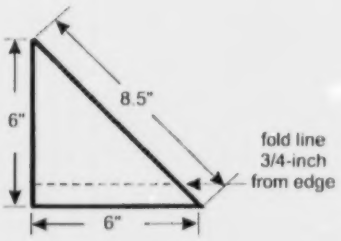
SHADOWS

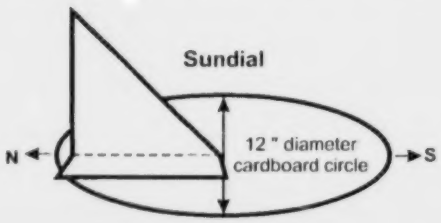
Make a sundial.
- Make a cardboard circle twelve inches in diameter.
- Make a cardboard right triangle 8-1/2 inches on one side, and 6 inches on the other two sides.
- Make a 3/4-inch fold along one 6-inch edge of the triangle.
- Fasten the 3/4-inch folded part of the triangle to the circle. Be sure to place the right angle of the triangle at the outer edge of the circle with the point of the triangle at the center of the circle.
- Place the sundial on a flat surface. Point the triangle in a north-south position.
- Every hour, mark the position of the shadow on the cardboard circle.

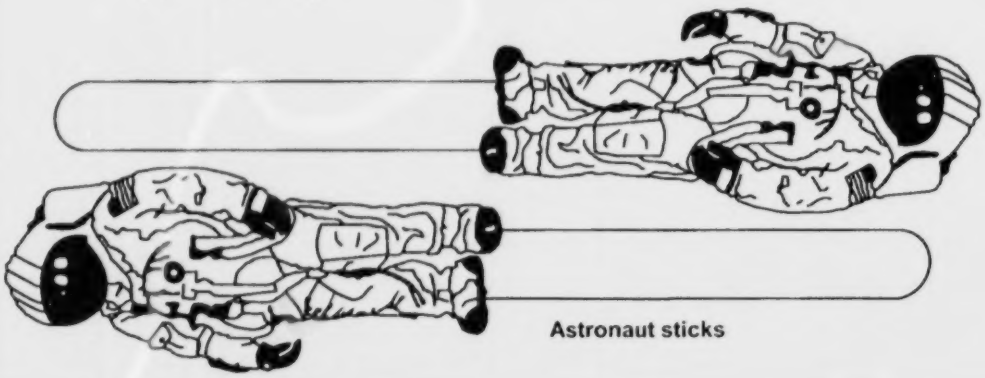
The shadow should travel the same distance each hour.
On sunny days, you will be able to tell the time by looking at the position of the shadow on the sundial.

Play shadow tag.

Use astronaut sticks to track the movement of the sun.
- Give each child an astronaut shape. Children color and cut out as appropriate.
- Attach an astronaut figure to the top of a craft stick.
  - Give each child six plain craft sticks, numbered "1" through "6."
- Early in the morning, put the stick in the ground in a sunny location.
  - Choose a spot where the sticks will not be disturbed.
  - Mark where the edge of the shadow falls using craft stick number "1."
- Mark the edge of the shadow of the astronaut stick every hour.
- What happens?
  - Help children draw conclusions about shadows and the movement of the sun.







Astronaut sticks

THE EARTH AND THE MOON

Do an experiment to show that the sun warms the earth.
- Put water in two jars.
- Place one jar in the sunlight, the other in the shade.
- Check the temperature of the water in each jar after half an hour.
    - Discuss why the water in the sunlight is warmer.
        - Why is the earth warmer in the daytime and cooler at night?

Demonstrate day and night with a globe.
- Shine a strong light on a globe or on a ball representing the earth.
    - Spin the globe or ball.
    - Point out the lighted portion and the shadow portion of the globe or ball.
        - Explain that the light is daytime and the shadow is night.

To help children understand how this relates to them, mark the globe to show where they live or mark the ball to represent their town.

Demonstrate that the moon reflects the light of the sun.
- Shine a flashlight on a mirror.
    - Help the children to see the reflection.
- Shine the light on a ball. (The ball represents the moon.)
    - Help the children recognize that they see the ball because it reflects the light.

Make collages of the daytime or nighttime sky.

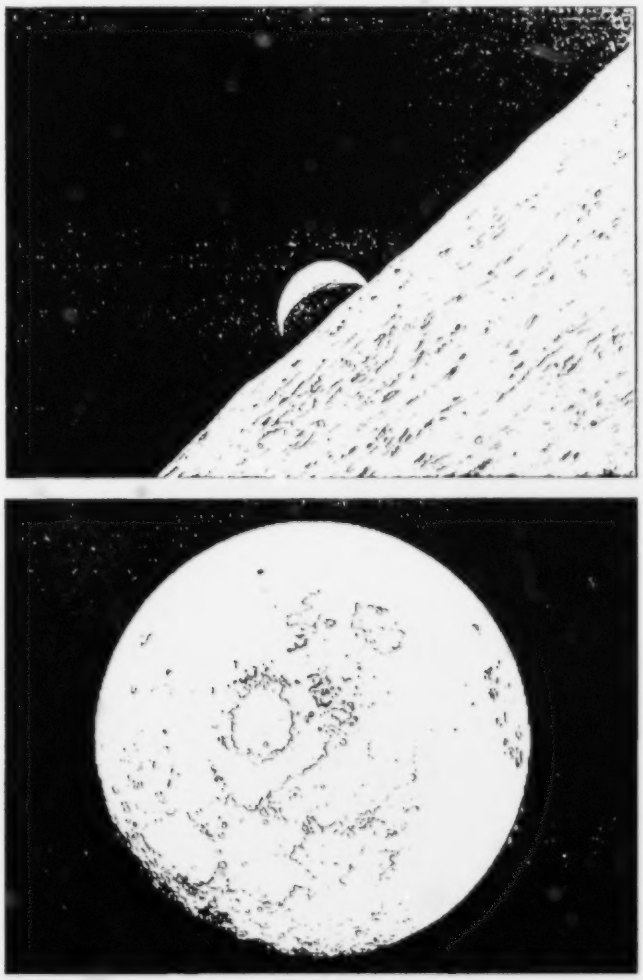
Make clouds.
- You will need:
    - a large jar with a lid
    - hot water
    - ice cubes
- Put three inches of hot water in a jar.
- Cover the jar with its lid.
- Place four ice cubes on top of the lid and watch the clouds form.

Make clouds on paper.
- You will need:
    - blue construction paper
    - cotton balls
    - glue sticks
- Have the children pull the cotton balls apart to make cumulous (fluffy) clouds, stratus (layers) and / or cirrus (curly, feathery) cloud formations.

Make clouds of Ivory soap.
- Beat a mixture of 2 cups of Ivory Snow and 1-1/4 cups of water with a hand mixer. Let the children use the Ivory soap to finger-paint clouds on blue construction paper.

Demonstrate the phases of the moon.
If possible, allow each child an opportunity to hold the moon-ball and to turn.
In this model, the child is the earth, the ball is the moon, and a strong light is the sun.
- Push a pencil or candy apple stick into a small, light colored, rubber ball.
- Use a black marker to draw a line around the ball. (This is the demarcation between night and day.)

- Begin the line where the stick goes into the ball.
- Make a big star on one side of the ball.
- Have a child hold the moon-ball by the stick.
  - The child holds the moon-ball slightly above his head and looks up to see it.
  - The child holds the moon-ball so that the star is facing him.
- From the other side of a darkened room, shine a strong light on the moon-ball.
  - The child will not see the lighted half of the moon-ball (the new moon).
- Keeping the star on the moon-ball always facing him, and keeping the moon-ball slightly above his head, the child very slowly turns in place. As the child turns, the moon-ball will display:
  - the crescent moon growing into the first quarter, to the full moon; then, becoming smaller to show the last quarter and the waning crescent.



ECLIPSES

Experiment to see how a small object can cover a larger object.
This is a demonstration of how a small object, because of its closeness to the observer, can cover a much larger object.

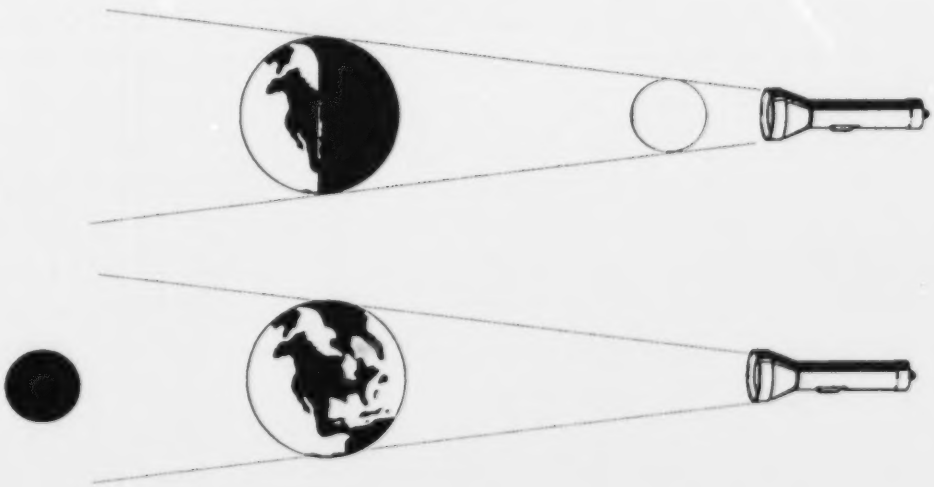
- Give one child a ball. Have the child stand in the doorway and hold the ball in front of him or her.
- Give another child a button. Have the child stand on the other side of the room. Have the child hold the button near his or her eye. Ask if he or she can see the ball?

The button, being closer to the child's eye, will block out the larger ball, just as the moon blocks out the larger sun.

Demonstrate an eclipse.
In this model, a globe represents the earth, a flashlight is the sun, and a small ball is the moon.

- From a distance of about three feet, shine a flashlight on a globe.
- Have a child hold a small ball between the globe and the light.
- A shadow (representing an eclipse of the sun) should fall on the globe.
- Move the ball behind the globe. Help the children understand that it is not receiving light from the sun, so it cannot be seen. (This is an eclipse of the moon.)

Be certain that the children understand that they must be standing on the part of the earth that is in the shadow in order to see the eclipse (or, sometimes, a partial eclipse).



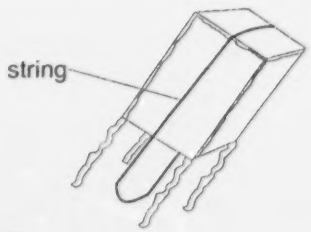
FLIGHT

Make individual hot air balloons using paper bags.
- Have the children decorate their balloons using crayons, markers, or paint. Fasten a plastic berry basket to the balloon using a needle and thread. Display the balloons in the classroom.

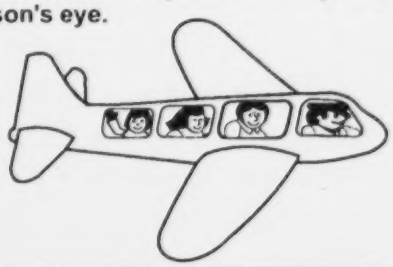
Go outside and fly a kite.

Make a parachute.
- Tie a string to four corners of a handkerchief.
- Attach a small toy to the strings.
- Toss into the air and watch the parachute bring the toy down to the ground.
- Make several parachutes.
- Attach toys of different weights.
- Toss each into the air at the same time; see which ones come down first.

Build and launch a hot air balloon.
- Gather together six sheets of tissue paper, a glue stick, a piece of string, a piece of scotch tape, and a pair of scissors.
- Use four full sheets of the tissue paper to build the balloon.
- Using the glue stick, fasten the long edges of the four sheets of tissue paper together, forming a square.
- From the fifth sheet, cut a piece to fit over the top; glue along all edges.
- Make a loop with the string; tape the loop to the center top of the balloon.
- Cut several long strips of tissue paper from the remnants of the fifth sheet; attach these streamers at each corner of the balloon. (The sixth sheet will be used to patch any tears in the balloon.) It is important to make sure all seams are joined together, with no "escape holes" for the air.
- Use the string handle to hold the balloon; heat the air inside the balloon with a paint stripper or a hand-held hair dryer. **Be careful not to touch the tissue paper with the hot tools; this will cause the paper to burn.** When the air has been heated enough, the balloon will try to "pull away" from you.
- Release the balloon and watch it fly away!



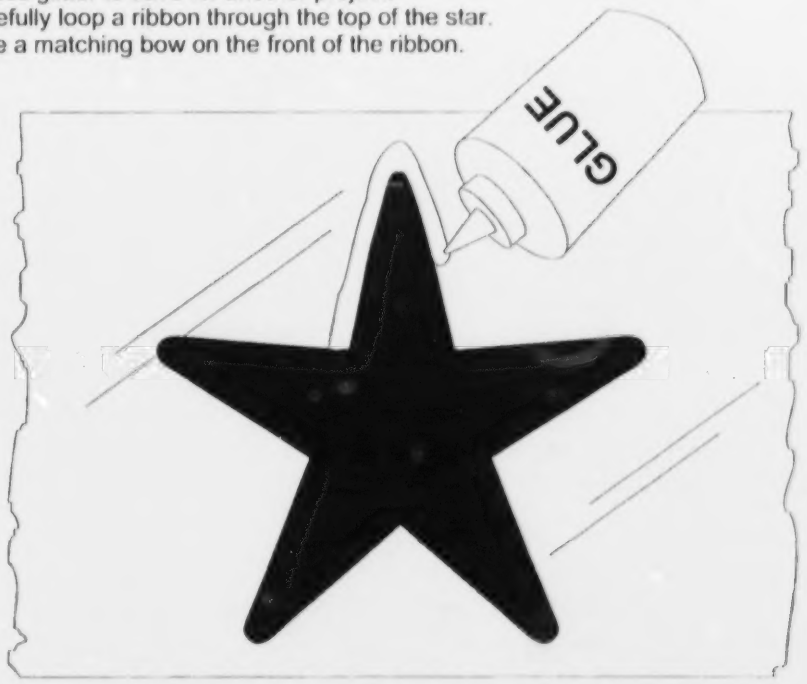
Fold paper airplanes.
- Make planes for or with the children and fly them.
- **Remind the children never to throw an airplane at another person. The pointed nose of the airplane could hurt another person's eye.**



THE STARS IN THE SKY

Make sparkle stars.

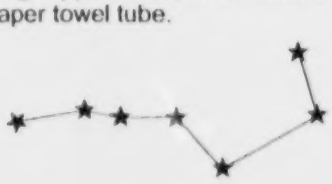
- Place the outline of a star (no bigger than five inches) under a piece of waxed paper.
- Use white glue to trace over the outline of the star. Be certain to make a thick, continuous line of glue.
- Cover the glue with glitter. Let dry thoroughly; shake off excess glitter.
- Starting at each point of the star, carefully peel the waxed paper away from the star.
- Carefully turn the star over and squeeze a line of glue over the dried glue on the back of the sparkle star.
- Cover with the same color glitter and let dry thoroughly. Shake off excess glitter to save for another project.
- Carefully loop a ribbon through the top of the star.
- Glue a matching bow on the front of the ribbon.



Make constellation tubes.

- Prior to doing this activity with the children, the teacher will cut the construction paper into three inch circles. Place a pattern of the Big Dipper over the center of the circle and use a pin to make a hole for each star in the constellation.

- Use a paper towel tube, one construction paper Big Dipper circle, and scotch tape.
- Tape the constellation pattern to the end of the paper towel tube.
- In a dark room, shine a flashlight through the paper towel tube, and the constellation pattern will appear on the wall.



THE PLANETS AND THE SOLAR SYSTEM

Investigate the phenomenon of cratering.

- Drop various sized rocks into a sand box in which the sand has been dampened.
  - Experiment with the velocity of the rock strikes in the sand box.
  - Experiment with the angle at which the rock strikes the ground.
- Carefully remove each rock, allowing the crater to remain undisturbed.
- See what happens.

ROCKETS

"Launch" a balloon rocket across the room.

- Fasten a piece of fishing line across the room, slipping a soda straw on one end before securing it to the wall. Blow up an oblong-shaped balloon. Hold the end of the balloon closed; tape the balloon to the soda straw. Hold the balloon-rocket at one end of the line while the children "count down." Release the balloon.
  - Does the balloon-rocket have enough power and fuel (air) to travel all the way across the room?
  - Try blowing different amounts of air into the balloon and observing the results.

Demonstrate how rockets work.

- Put some vinegar in a clear soda bottle. Wrap some baking soda in tissue paper and put it in the bottle. Put a cork in the mouth of the bottle. Lay the bottle on its side on top of some pencils (so it can roll).
- The vinegar and soda will combine to form carbon dioxide gas. The pressure will build up, the cork will pop, and the bottle will roll backward. Compare this to a rocket launching, with the gases coming out at the bottom and the rocket moving up from the launch pad.

Make rockets.

- Using empty toilet paper rolls (or paper towel rolls cut in half), cut fins and a nose cone from construction paper; attach to tube. Decorate.

- Make rockets by using pattern blocks.

Make rocket sequence cards.

- Color the pictures (see page 14); mount on construction paper. Number the pictures one through six, placing the appropriate numerals on the back of each picture. Laminate. Children put the pictures in sequential order. Check their work by flipping them over to see if the numbers are in order. Or, children can put the numbers in order, then flip the pictures over to see the sequence of events in the rocket launch.

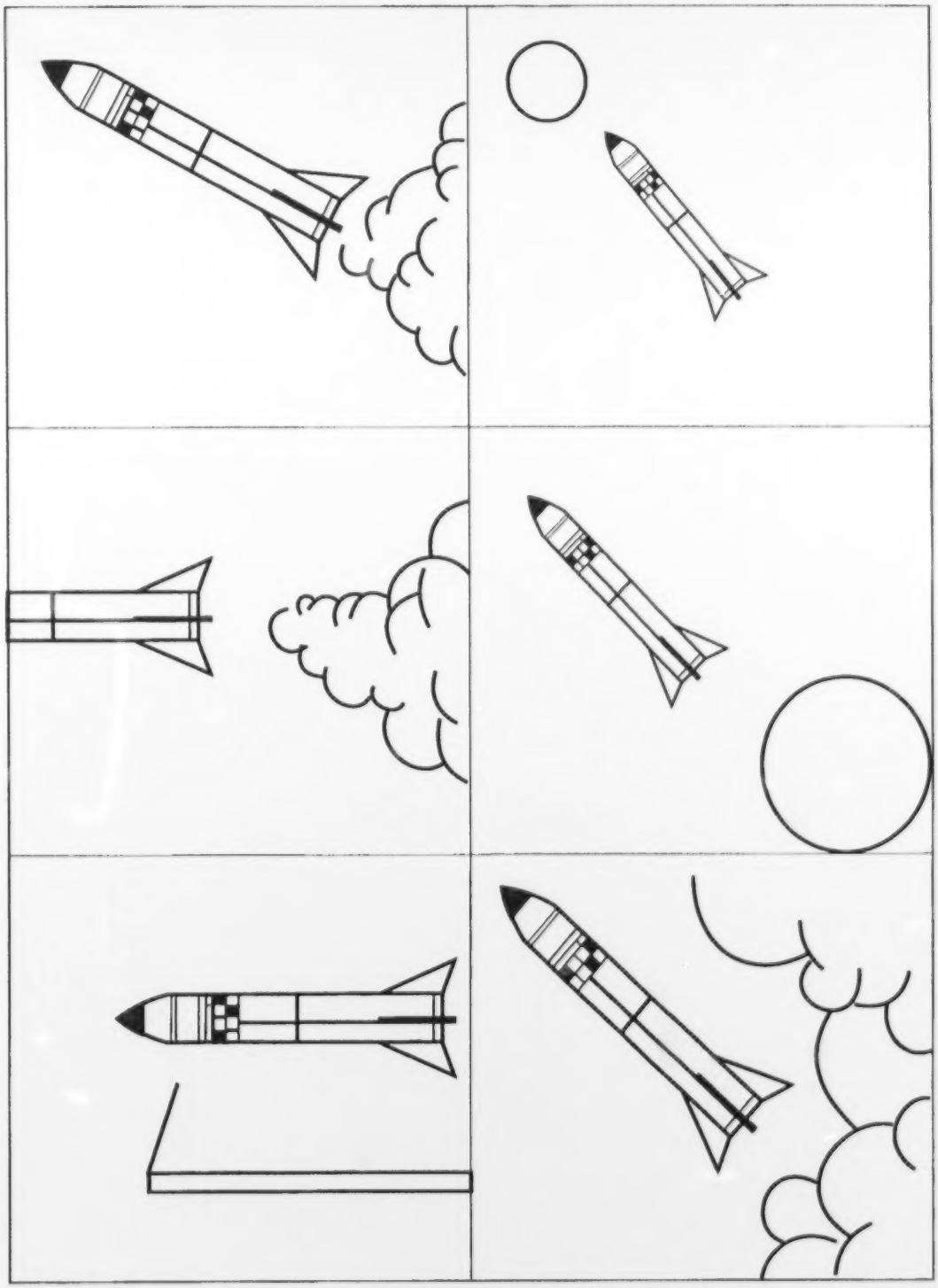
Make rocket flip books.

- Children color the pictures (see page 14). Then have them carefully cut out the rectangles containing the pictures. Stack the pictures in order, with the first picture on the bottom. Staple at the top. Flip the pages from the bottom to watch the rocket launch.

Learn rocket action poems and songs.

- " I'm a Little Rocket" (Child repeats poem as he does the action in parentheses.)
  I'm a little rocket..... (child squats down)
  Pointing to the moon..... (child points upward)
  4...3...2...1..... (child repeats slowly)
  Blast-off! Zoom!.....(child jumps up into the air)

- " Did You Ever See a Rocket" (Sing to the tune of "Did You Ever See a Lassie.")
  Did you ever see a rocket, a rocket, a rocket?
  Did you ever see a rocket go this way and that?
  Go this way and that way, go this way and that way.
  Did you ever see a rocket go this way and that?



ROCKET SHIP MATCH

Using the larger rocket ship pattern, prepare one set of rocket ships. Make individual sets of rocket ships (in different colors) using the smaller rocket ship pattern. The following chart lists some combinations that can be used for the rocket ship activity.

If the large rocket ship has this:	**The matching small rocket ships have this:**
- Upper case letters	- Upper case letters
- Upper case letters	- Lower case letters
- Lower case letters	- Lower case letters
- Lower case letters	- Upper case letters
- Numerals	- identical numerals
- Numerals	- Sets representing a numeral
- Shape	- Identical shape
- Large shape	- Same shape, only smaller
- Color dots	- Identical color dots

Use the rocket ships to...

- practice color recognition.
- practice shape recognition.
- practice number recognition.
- practice letter recognition.
- practice matching upper and lower case letters of the alphabet. (Put a lower case letter on one rocket, the uppercase "match" on another rocket shape.)

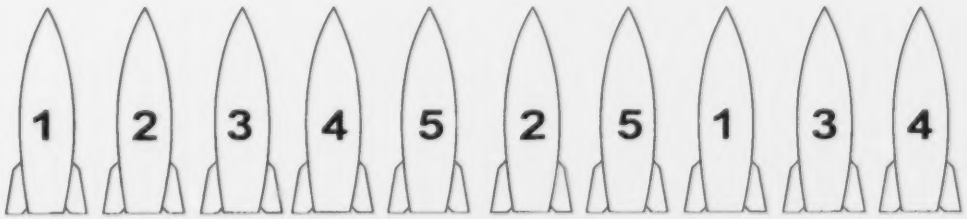
To use the rocket ships:

- For an individual activity-

- Spread the large rocket ships out on the floor.
- Give each child an individual set of rocket ships.
  - Children "match" their individual rocket ships to the large ship, placing them next to the large rocket ship that they match.
  - Children having problems can be easily identified, since each has his or her own color of rocket ships with which to play.

- For a whole group activity-

- Distribute the large rocket ships, one to each child.
- Practice alphabetical or numerical order by calling out the letter or number.
- The child with that rocket ship comes forward.
- Children form a line as they find the place they belong.



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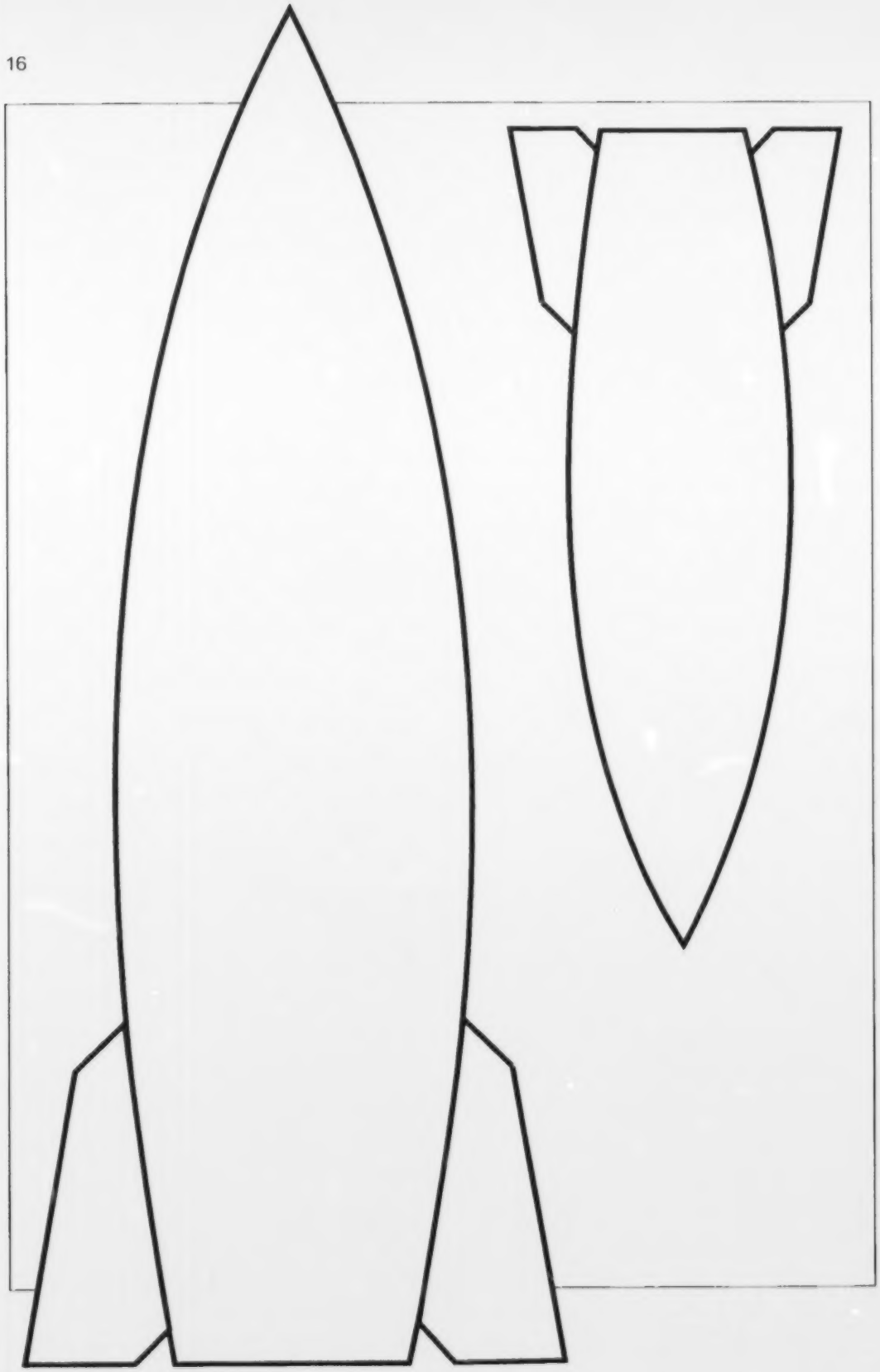


THREE - TWO- ONE - BLAST-OFF!

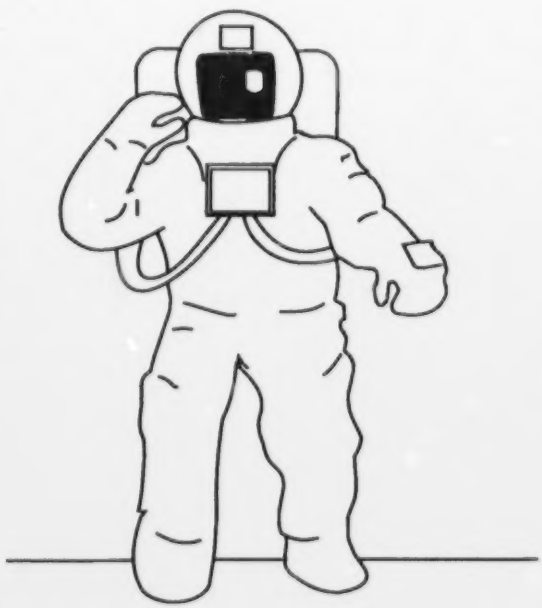
Using the pattern, prepare grid sheets with nine squares on them.

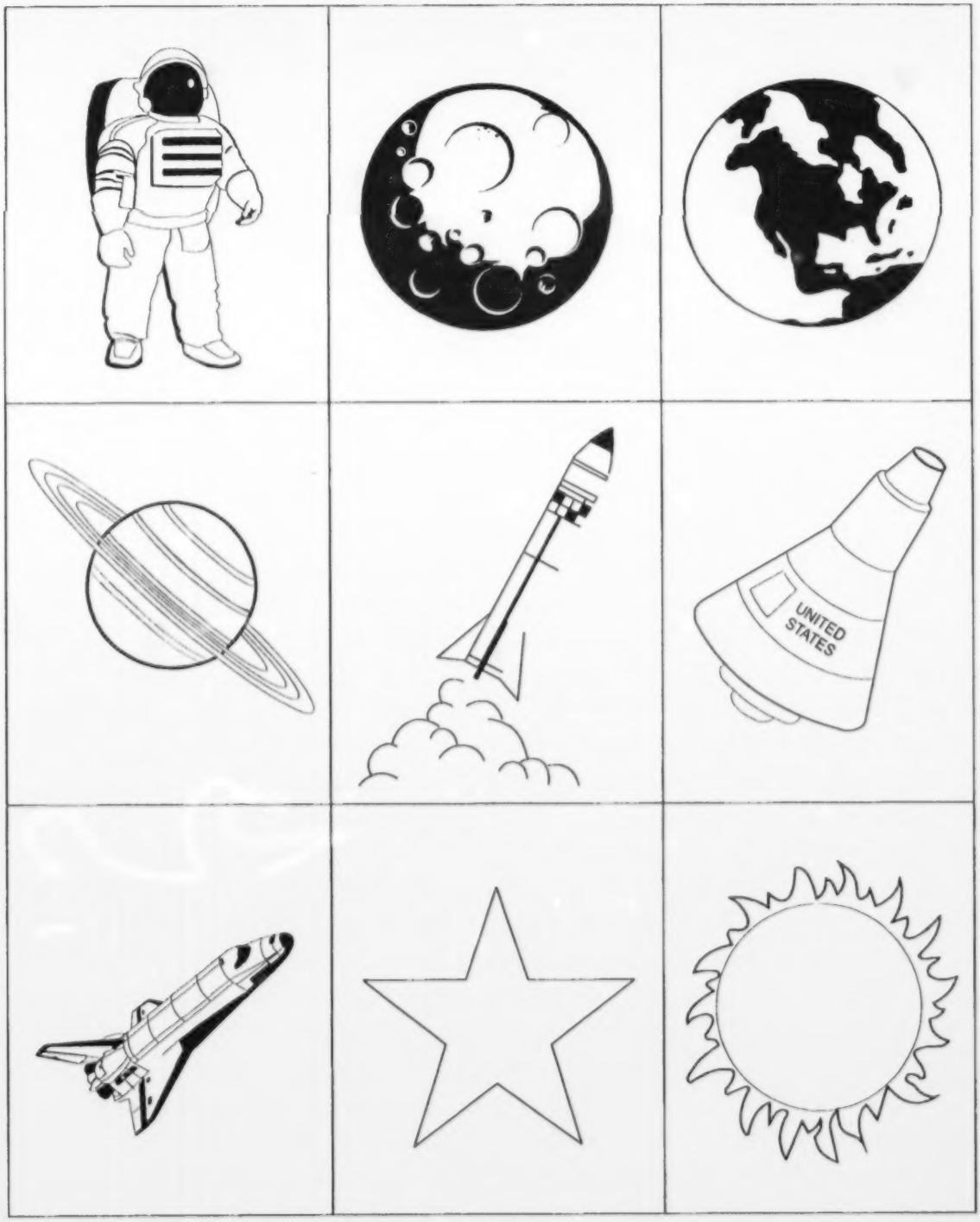
Randomly place one aerospace shape (such as: astronaut, crescent moon, earth from space, planet, rocket, space shuttle, space capsule, star, sun) in each grid square. Make each grid sheet different. Laminate all the grid sheets.

Cut apart one of the grid sheets to use as calling cards for the game.

To use the grid sheets:

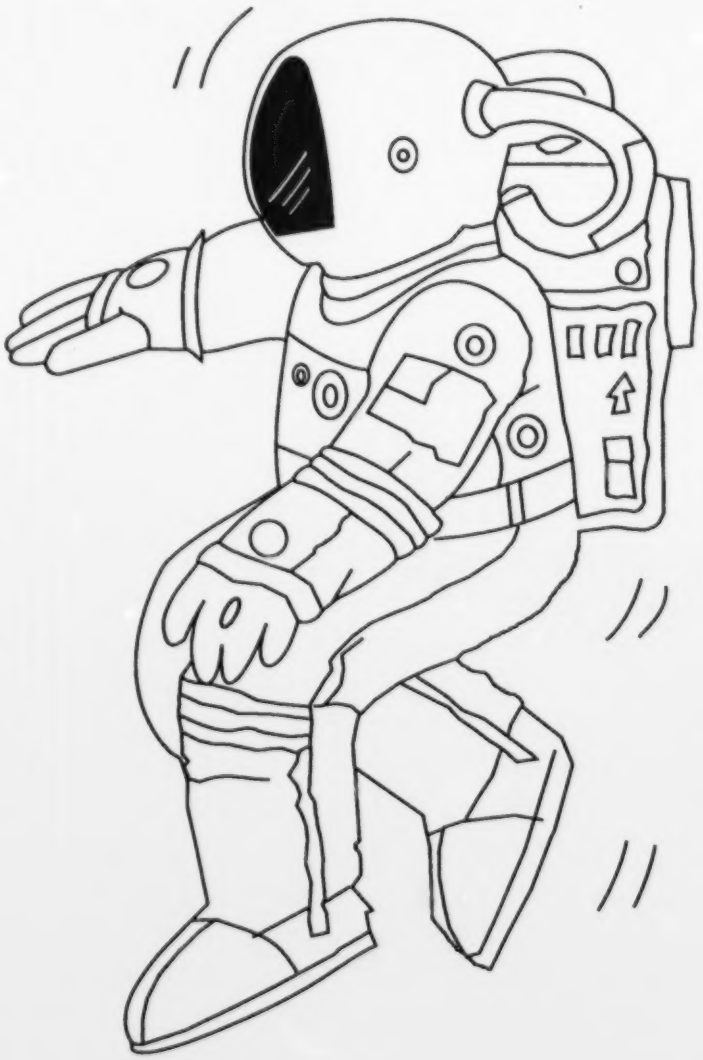
- Give each child one of the grid sheets and a set of markers.
- Use plastic milk bottle tops, unifix cubes, pattern blocks, or paper squares for markers. Older children can also use beans or buttons for markers.
- Children sit on the floor with their grid sheet and their markers in front of them.
- The teacher mixes up the stack of calling cards, places them face down in a pile, and chooses one.
    - For very young children, show the picture; have them cover the matching one.
    - For older children, tell the name of the picture; they find it and cover it.
- Play continues in this manner. When a child has covered up three of the aerospace pictures in a row on his or her grid sheet, the child calls out "Blast-Off!"
- The teacher uses the pile of calling cards named in the game to "check" the grid sheet.
- Play can stop at this point, or can continue until each child has achieved "Blast-Off!"




UNITED
STATES

ASTRONAUTS

Explore the parts of an astronaut's space suit and life support systems. Use a Cabbage Patch Young Astronaut doll. (For closer approximation of the complete astronaut suit, put socks under the doll's boots and a one-piece jumpsuit-type outfit under the space suit. Cover the hair with a tight cap.)



EXPLORING THE MOON

Make a Lunarscape.

- Mix gray paint into Plaster of Paris (or plan to paint the plaster after it dries).
- Spread the plaster in a box or container.
  - On one side, build up mountains.
  - Smooth the rest of the surface area.
  - Form craters by dropping rocks onto the surface; carefully remove the rocks.
  - Let dry.
- To place a flag on the moon, use a flag on a toothpick. Stick the toothpick into the plaster after it begins to setup, but before it hardens.
- When dry, paint (if necessary). Add astronauts, lunar vehicles, lunar colony domes.

Make and individual lunarscape.

- Paint cardboard cake circles.
- Use gray paint mixed with sand.
- When dry, add an astronaut and a flag.

FOOTPRINTS ON THE MOON

Using the pattern, prepare sets of gray lunar boot prints. Prepare them according to planned activities to

- practice color recognition.
- practice shape recognition.
- practice number recognition.
- practice letter recognition.
- practice matching of upper case and lower case letters of the alphabet.
- practice the phonetic sounds of the letters.

On each boot print write upper case letters, lower case letters or numerals. Or, make a variety of shapes (circle, square, rectangle, triangle, star). Or, make color splashes in the center of each lunar boot print.

Laminate all of the lunar boot prints.

To use the lunar boot prints:

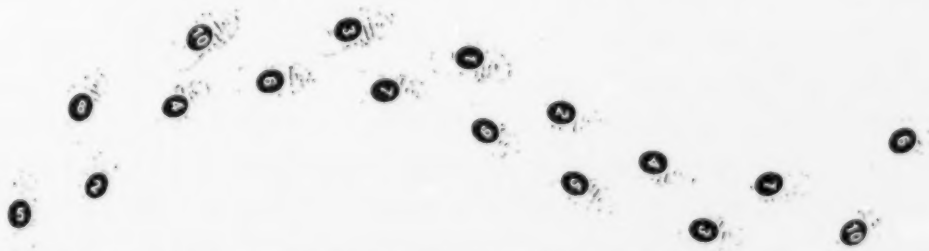
- Set out the line of lunar boot prints on the floor.
- Seat children along one side of the line of lunar boot prints.
- Children, in turn, move to the beginning of the line and walk the lunar boot prints.
- Children will complete the activity according to the directions given:
  - Identify the color, shape, or numeral.
  - Name the alphabet letter or make the letter's sound.

Children should be given the opportunity to correct mistakes along the way. Children who cannot complete the activity go to the end of the line of children waiting to do the activity.

- They observe other children complete the activity.
- They have another opportunity to complete the activity successfully.

Tips:

- Remember to use a spacing appropriate for small feet!
- An adult should hold hands or walk with little ones as they complete the activity.
- Children should name the color, shape, numeral, letter, or make the phonetic sound before stepping on the letter.
- Do not put the letters (or numbers) on the floor "in order;" mix them up. This will help you know if the children really recognize and know the letter or number.

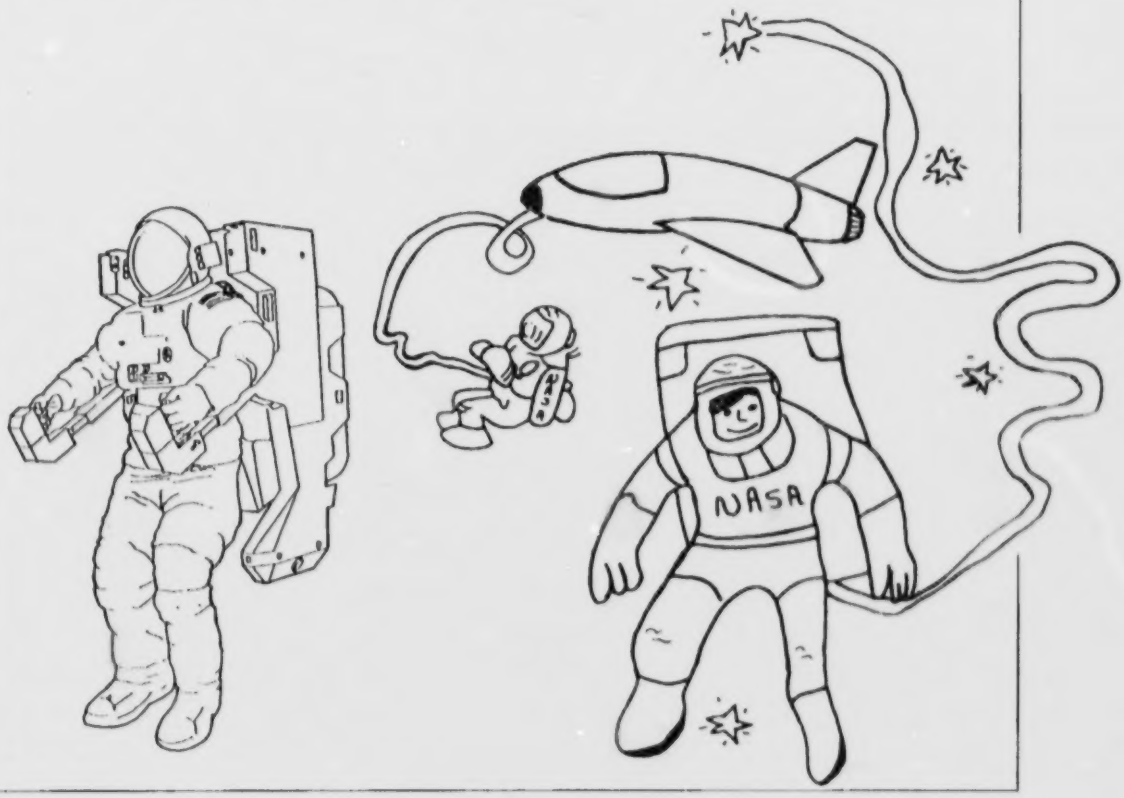


LIVING IN SPACE/THE SPACE SHUTTLE

Build an inflatable spacecraft.
Use duct tape to fasten two clear plastic drop cloths together along both long sides, one short side. Attach the open end to a box fan with enclosed blades. Make a door in the side of the spacecraft by cutting three sides and securing with velcro tape (to keep the air from escaping). Children enter via the door and sit opposite the fan. **Adult supervision is required whenever the fan is on. Children should not be in the spacecraft when the fan is off.**

Use a rope to "tether" an astronaut to the inflatable spacecraft.
Attach the tether to a belt loop, or tie loosely (with a non-slip knot) around the waist. Allow the child to explore and to discover the limited movement ability. **Closely supervise the children at all times while using the tether rope. Children should not try this without constant adult supervision.**
Compare this to the mobility of the Manned Maneuvering Unit (MMU).

Make a Portable Oxygen Supply (POS).
POS is an acronym for Portable Oxygen Supply. Remind the children that there is no air in outer space. Whenever astronauts go into space, they must take their air with them. When they leave their spacecraft, they must wear a space suit to protect their bodies and they must take their air with them.



Make a MMU.
MMU is an acronym for Manned Maneuvering Unit. Before astronauts had the MMU, they had to be tethered (fastened) to the space capsule when they went on an EVA (extra vehicular activity, better known as "space-walking"). The MMU allows the astronaut the freedom of moving around in space without the tether. At the same time, it ensures that the astronaut will not simply drift away in space.

To make the MMU, use a cardboard box a little smaller than the children's backs.

- Fasten straps to the box so they will be able to cris-cross and will also be adjustable so that all of the children will be able to take a turn wearing the MMU.

- Cut two six-inch wide pieces of cardboard the length of the children's arms.
  - Fasten one to each side of the MMU.
  - Fasten elastic at the end of the cardboard strip for the child to slip his or her hands through.

- Let the children decorate the MMU.

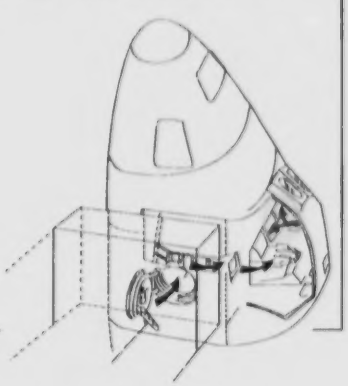
See how an astronaut moves through an airlock.
Get a cardboard carton from a refrigerator or dishwasher, and x-acto knife, and a drawing compass.

Draw large circles on two opposite sides of the cardboard carton.

Cut open each circle, leaving one side attached to the box so the circles can be "opened" and "closed" like a door. Attach a handle on each side of the doors.

Discuss why airlocks would be important for people living away from earth. Help children to understand that there is no air in space and that airlocks keep air inside the space vehicle or building.

To use the airlock, have a child "open" the hatch, crawl inside, and "close" the hatch. The child moves to the other side of the box, "opens" the hatch, crawls out, and "closes" the hatch.

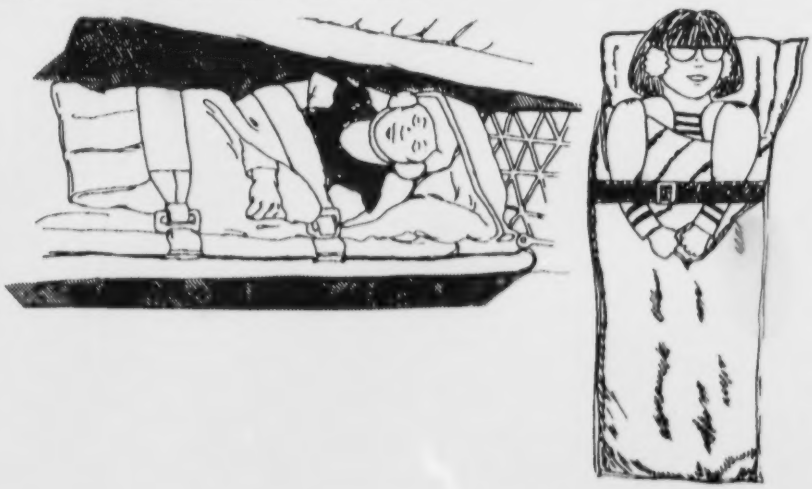


See what it feels like for an astronaut to sleep in the space shuttle.
Gather together a sleeping bag, a large belt, a part of earmuffs, and a large scarf.
Children who wish to try the experiment proceed as follows:
- Take off shoes.
- Get into sleeping bag; zip up, leaving arms outside.

Teacher will then:
- Cover the child's ears with the earmuffs.
- Use the large scarf to cover the child's eyes.
- Strap the belt around the sleeping bag to hold down child's arms.

IT IS IMPORTANT TO TALK ABOUT HOW ASTRONAUTS SLEEP IN SPACE BEFORE DOING THIS ACTIVITY. IF POSSIBLE, SHOW THE CHILDREN PICTURES OF ASTRONAUTS IN SLEEPING RESTRAINTS. LET THEM TALK ABOUT HOW IT MIGHT FEEL TO HAVE TO BE STRAPPED DOWN TO SLEEP.

CHILDREN SHOULD BE FREE TO STOP THIS ACTIVITY AT ANY TIME. SOME CHILDREN WILL BECOME FRIGHTENED WHEN THE EARMUFFS AND/OR THE BLINDFOLD ARE PUT ON. IT IS IMPORTANT FOR THE TEACHER TO BE RESPONSIVE TO THE CHILD'S FEELINGS.



Experiment to see why humidity is necessary to prevent dehydration.
- Cut two slices of peeled apple.
- Fasten each slice to the lid of a jar or a container.
- Put one cup of water in one of the containers.
- Put the lids on both containers and set them in the sunlight.
- Observe the apple slices after half an hour.
  - Have they changed?
  - If so, how?
- Observe the apple slices after one hour.
  - Let the children make observations.

Compare dehydrated, dried, and fresh fruits.
For this activity, you need dehydrated peaches and apples (Heinz baby food in cans), dried peaches, dried apples, fresh apples, and fresh peaches.

- Compare each type of fruit.
  - Weigh each.
    - Decide which would be the most efficient way of carrying food into space.
- Show the children how to add water to the dehydrated food.
- Let the children sample all three forms of either the apples or the peaches.

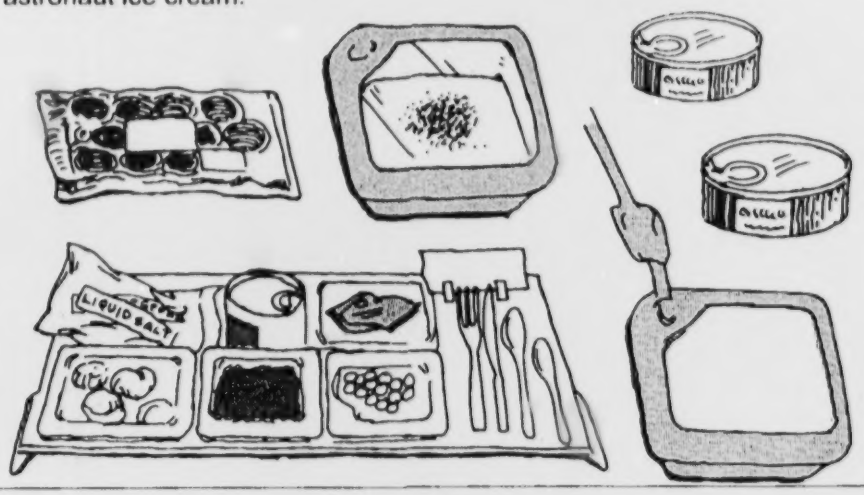
Eat like an astronaut in space.
Be sure to discuss why food is not served in a bowl as it would be on earth. If necessary, remind the children about weightlessness in space. Talk about why it would not be a good idea for food to float all around the space capsule or space shuttle. (Space shuttle foods are "sticky"foods with sauce that holds the food together and keeps it in the dish. Foods like peanuts, M&Ms, and raisins float in space. Liquids form into globules.)

Make instant pudding.
- Place a small amount in a plastic sandwich bag for each child.
- Cut off a corner of the bag.
- The children squeeze the pudding out of the bags and into their mouths.

Prepare Tang and pour it into sandwich bags.
- Poke a straw into the bag; secure with a paper clip.
- Children drink their space drinks through the straw.

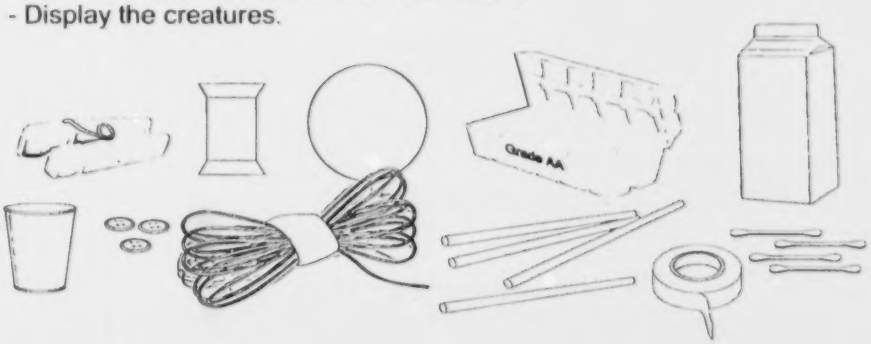
If you have made the inflatable spacecraft, you might want to have your space snack inside the spacecraft.

Sample some "astronaut" food.
Try astronaut ice cream.



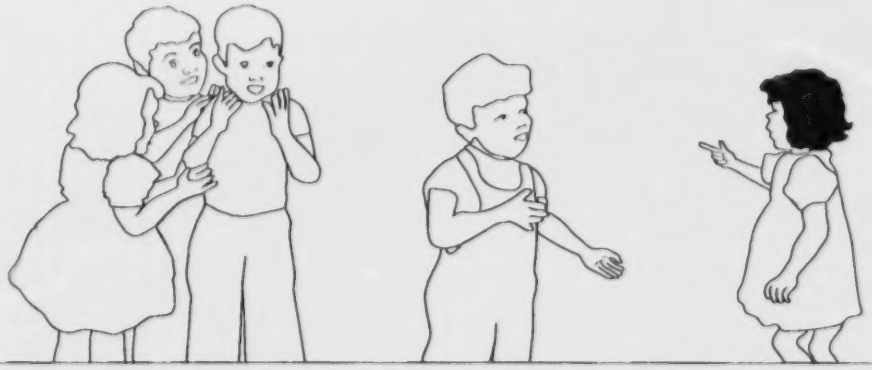
Make a space creature.

- Use styrofoam balls, pipe cleaners, milk cartons, paper scraps, ping pong balls, buttons, thread spools, clothes pins, plastic containers, lids, sequins, yarn, egg cartons, paper cups, straws, or any other handy materials.
- Encourage the children to use their imaginations.
- Let each child tell about his or her creature.
- Display the creatures.



Play "Man from Mars."

- Children form a line at one end of the playing area.
- Choose one Man from Mars (boy/girl). The chosen child stands in the middle of the area.
- Earthlings (children in the line) call out,
  "Man from Mars, Man from Mars (or "Girl from Mars, Girl from Mars")
  Will you take us to the stars?"
- The Man or Girl from Mars answers,
  "Only if you are wearing _____." (He or she names a color.)
- All Earthlings in the line wearing the color called,
  walk to the side of the playing area.
- All Earthlings in the line **NOT** wearing the color called,
  run, skip, hop, jump or gallop, (as directed by the teacher) to the other side trying to avoid being tagged by the Man/Girl from Mars.
- All tagged Earthlings join the Man/Girl from Mars in the center.
- Try to be the **last** one **tagged.**



SPACE SHUTTLE CONCENTRATION

Using a pattern, prepare a double set of space shuttles using a single color paper.

Write one shape, numeral, or letter on two separate space shuttles. Or, make a color dot to attach to each of two separate space shuttles. Laminate all of the space shuttles.

Use the space shuttles to

- practice color recognition.
- practice shape recognition.
- practice number recognition. (Use two numerals for a "match" or use a numeral and a set of dots to represent the numeral as a "match.")
- practice letter recognition.
- practice matching upper and lower case letters of the alphabet. (Put a lower case letter on one space shuttle, the upper case "match" on another space shuttle shape.)
- practice letter sounds. (Children make the letter sound as they turn over a space shuttle shape.)

To use the space shuttles:

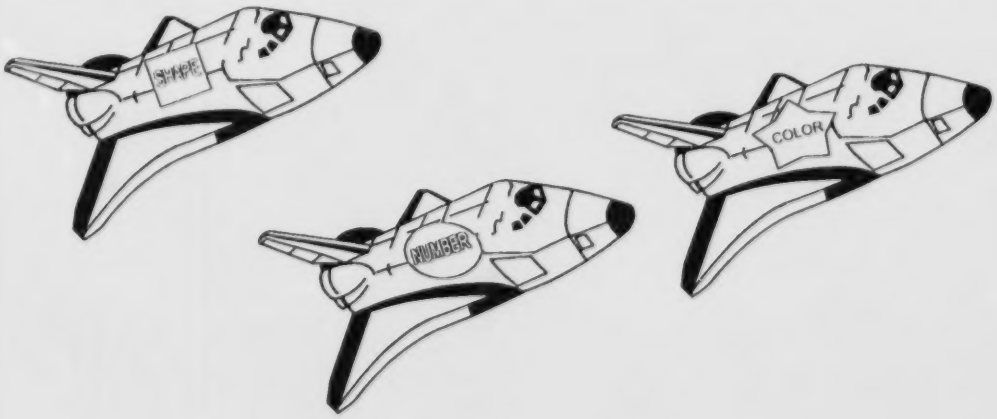
- Spread the space shuttles out face down on the floor.
- One child at a time turns over one of the space shuttles, then tries to find a "match" by turning over a second space shuttle.
- Non-matching space shuttles are turned face down again.
- Children keep space shuttles they have matched.
- Children can play individually, in a small group, or in partner teams of two.

Tips:

Use only the shapes, colors, numbers, or letters needed to reinforce the concept you are teaching.

Very young children will be more comfortable with only a few shapes, colors, numbers, or letters at a time.

Make smaller sized, individual sets of space shuttles for each child.



BOOKS FOR YOUNG CHILDREN

Resource and Information Books

EARTH AND MOON ***
Book Two:
Sunshine Science Books Space Series
Fred and Jeanne Biddulph
Bothel, Washington: The Wright Group
1992

EXPLORING SPACE ***
Book Three:
Sunshine Science Books Space Series
Brian and Jillian Cutting
Bothell, Washington: The Wright Group
1992

EXPLORING SPACE ***
Concept Science
Colin Walker
Cleveland,Ohio:
Modern Curriculum Press Incorporated
1990

MOON BUGGY ***
Ross Latham and Peter Sloan
Australia: Maurbern Pty Ltd
Rigby Education, Incorporated, Distributor
1987

OUR SOLAR SYSTEM ***
Concept Science
Colin Walker
Cleveland, Ohio:
Modern Curriculum Press Incorporated
1990

SKYLAB
Ross Latham and Peter Sloan
Australia: Maurbern Pty Ltd
Rigby Education, Incorporated, Distributor
1986

SUN UP, SUN DOWN
Gail Gibbons
New York: Scholastic Books Incorporated
1983

THE CHILDREN"S GIANT ATLAS OF THE UNIVERSE ***
Ian Ridpath
Stamford, Connecticut:
Longmeadow Press
1989

WHAT IS IN SPACE ***
Book One:
Sunshine Science Books Space Series
Brian and Jillian Cutting
Bothel, Washington: The Wright Group
1992

*** Available in Big Book Format

CHILDREN'S LITERATURE

ANGUS THOUGHT HE WAS BIG ***
Amanda Graham and William Wood
Giant Step Readers
California: Educational Insights
1987

BEAR SHADOW
Frank Asch
New York: Simon and Schuster
1985

BLAST OFF!
A Fisher-Price Little People Book
Lori Reiser and Peter Trumbull
Grand Haven, Michigan:
School Zone Publishing Company
1995

BORED -- NOTHING TO DO
Peter Spier
New York: Doubleday and Company
1978

HAPPY BIRTHDAY, MOON
Frank Asch
Englewood Cliffs, New Jersey:
Prentice-Hall, Incorporated
1982

I WANT TO BE AN ASTRONAUT
A Byron Barton
New York: Thomas Y. Crowell
1988

MERRY CHRISTMAS, SPACE CASE
James Marshall
New York: Doubleday and Company
1992

MOONCAKE
Frank Asch
New York: Prentice-Hall Books for Young Readers
1983
-- OR--
New York: Scholastic Books Incorporated
1989

MOONGAME
Frank Asch
New York: Scholastic Books incorporated
1984

MY SHADOW
Robert Louis Stevenson
Boston: David R. Godine,
1989

PAPA, PLEASE GET THE MOON FOR ME
Erid Carle
Saxonville, Masschusetts:
Picture Book Studios,
1986

REGARDS TO THE MAN IN THE MOON
Ezra Jack Keats
New York: Aladdin Books
McMillan Publishing Company
1981

SKY SONGS
Myra Cohn Livingston
New York: Holiday House Books
1984

SPACE CASE
James Marshall
New York: Dial Books for Young Readers
1980

SPACE SONGS
Myra Cohn Livingston
New York: Holiday House
1988

THE MAGIC SCHOOL BUS LOST IN THE SOLAR SYSTEM ***
Joanna Cole
New York: Scholastic Books Incorporated
1990

CHILDREN'S ACTIVITY BOOKS

DOT-TO-DOT IN SPACE
Karen Bryant-Mole
Tulsa, Oklahoma: EDC Publishing
1983

FUN AND GAMES STICKER BOOK SPACE
Robin Kerrod
New York: Gallery Books
W. H. Smith Publishers, Incorporated
1989

FOUR-IN-ONE ACTIVITY BOOKLETS
Book One: - Gravity/Balloons and Blimps
- Clouds/Weather
Book Two: - Development of Flight
- Working with Airplanes
- Navigation/A Lot of Air
Civil Air Patrol
Maxwell Air Force Base, Alabama

FUN IN FLIGHT
Civil Air Patrol
Maxwell Air Force Base, Alabama

I CAN DRAW SPACESHIPS, ALIENS, AND ROBOTS
Tony Tallarico
New York: Simon and Schuster
1989

INSTANT PAPER AIRPLANES
E. Richard Churchill
New York: Sterling Publishing Company, Incorporated
1988

MIX AND MATCH TRACING BOOKS SPACE
Mary Damon, Illustrator
Los Angeles: Price Stern Sloan
1988

CURRICULUM SUPPORT MATERIALS FOR TEACHERS

CHATTERBOX PRESS
READINESS ACTIVITIES
1987 Space

CREATIVE TEACHING PRESS
INVESTIGATING SCIENCE
1987 Journey Into Space
1987 Planets and Space
1992 Space

EVAN-MOOR CORPORATION
1994 Earth, Sun and Moon

GOLDEN RECORDS
Undated The Space Alphabet
John Cacavas, Don Woolf, Bonnie Becker, and Kimberly Blake

GOOD APPLE ACTIVITY BOOKS
1988 Look to the Sky

KIMBO EDUCATIONAL MUSIC
1988 Journey Into Space
Jane Murphy

LEARN-ABOUTS
FLIP BOOK
1992 If I Were An Astronaut
Pam Lovejoy

MACMILLAN EARLY LEARNING
SCIENCE ACTIVITIES
1992 Outer Space

MARI, INCORPORATED
1992 Space
Sylvia Anderson

MOTIVATIONAL RECORDS
SINGING SCIENCE SERIES
Undated Space Songs
Tom Glazer and Dottie Evans

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
1987 living In Space -- Book I

TEACHER CREATED MATERIALS
1984 Let's Investigate Space
1994 Hands-On/ Minds-On Science Space

TEACHER'S FRIEND PUBLICATIONS
1989 July/August
A Creative Idea Book for the Elementary Teacher

THE BIG BOOK OF SCIENCE RHYMES AND CHANTS
1991 Evan Moor Corporation
Jo Elle Moore and Leslie Tryon

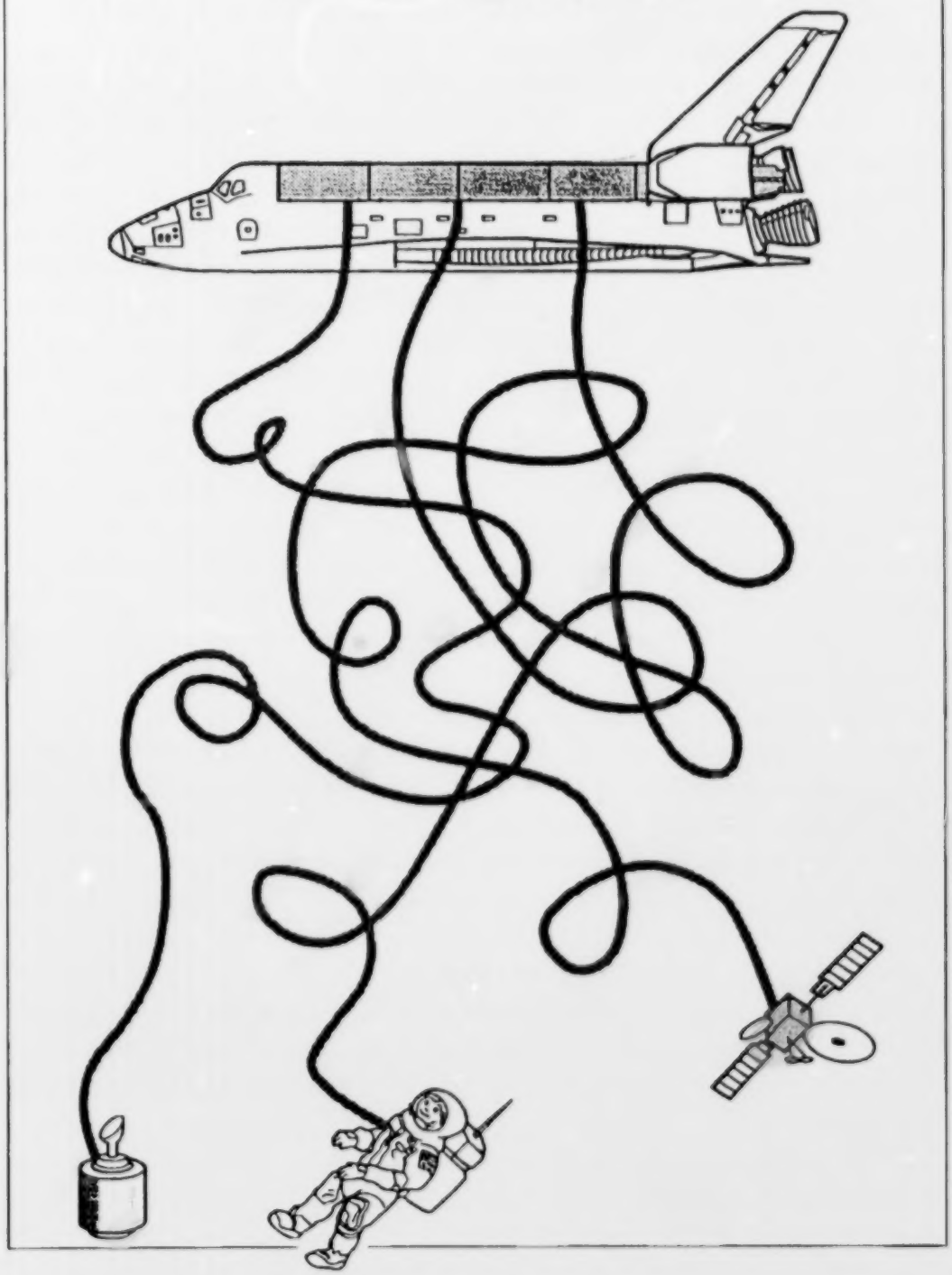
THE CENTER FOR APPLIED RESEARCH IN EDUCATION
1989 Space

THE STORY OF SPACE AND ROCKETS
1986
Roger Arno

YOUNG ASTRONAUT COUNCIL
THE YOUNGEST ASTRONAUTS
1987 A Pre-School Aerospace Curriculum Module

YOUNG ASTRONAUTS COLORING BOOK
1987 The Earth and the Solar System

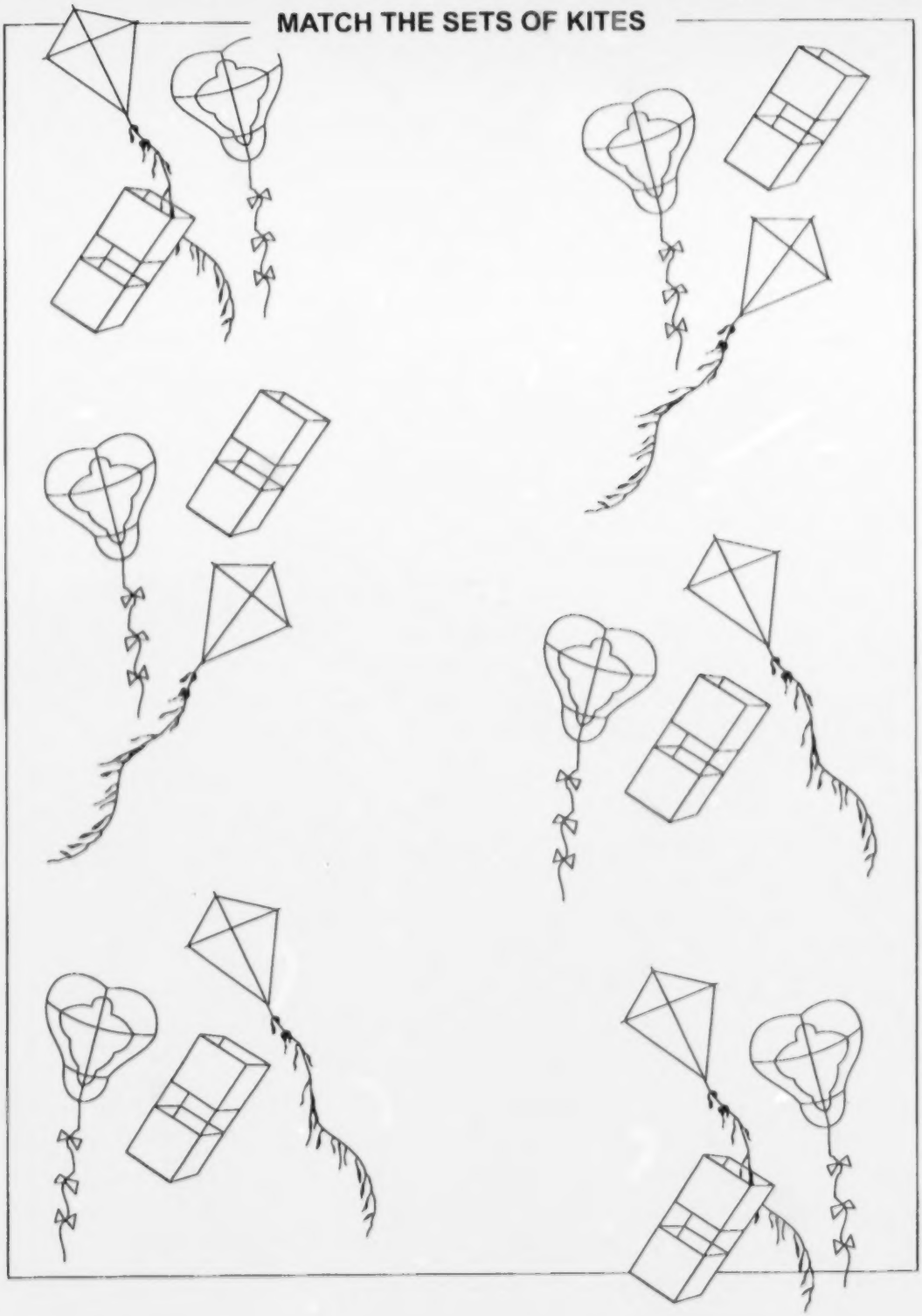
BRING STARRY BRIGHT BACK TO THE SPACE SHUTTLE ORBITER



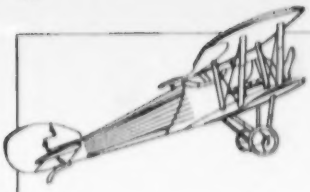
COLOR

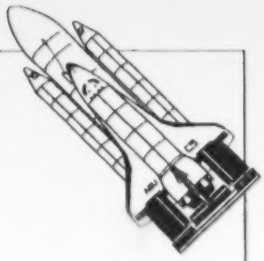
Circle the items above that would make a good dinner for Sonny Astro.

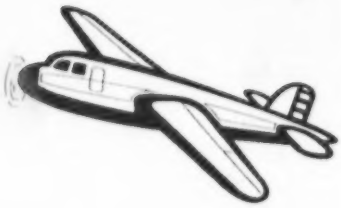
MATCH THE SETS OF KITES

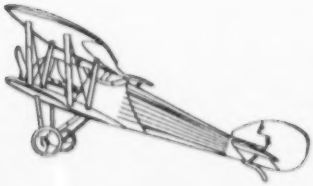


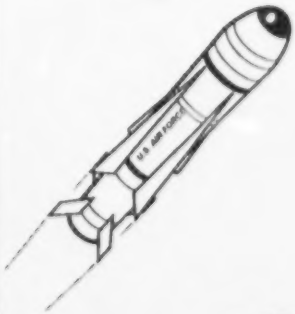
AIRCRAFT MATCHING

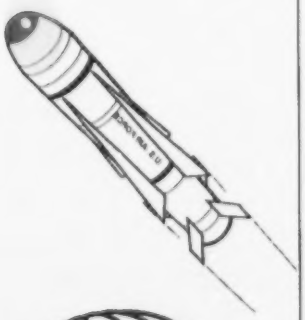


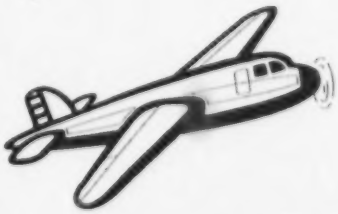


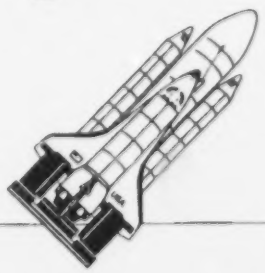




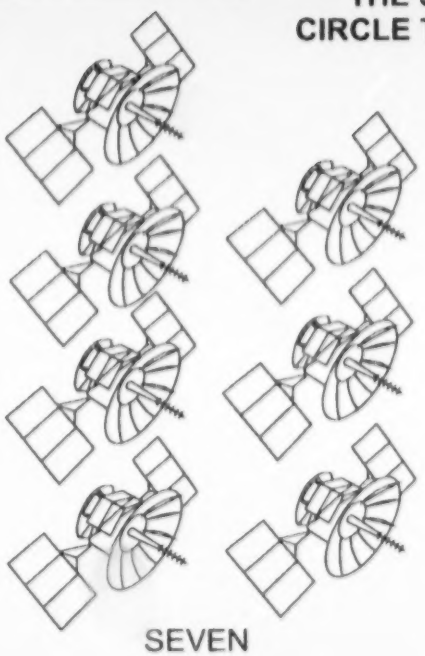




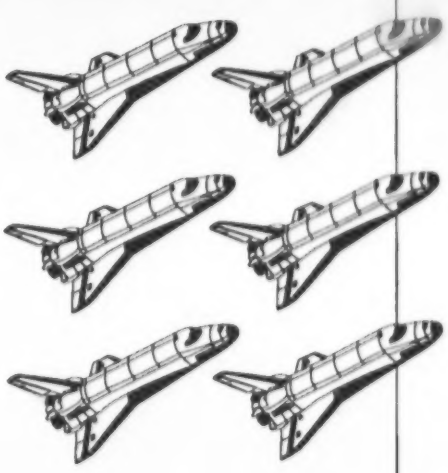




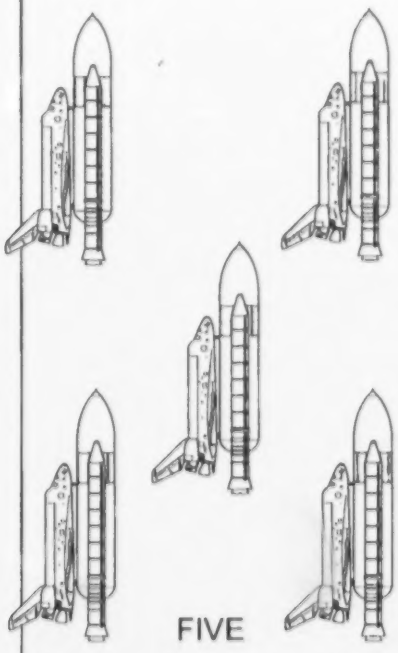
DRAW A SQUARE AROUND THE SET OF FIVE.
CIRCLE THE SET OF SIX.



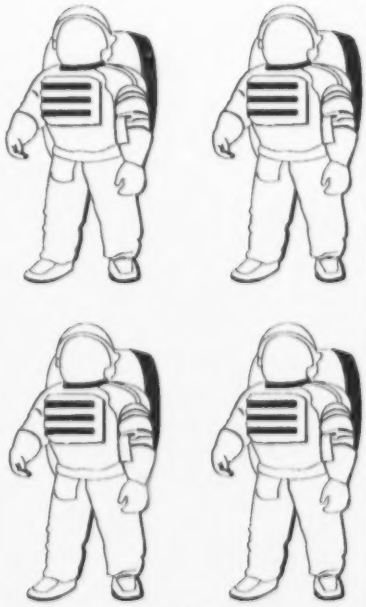
SEVEN



SIX

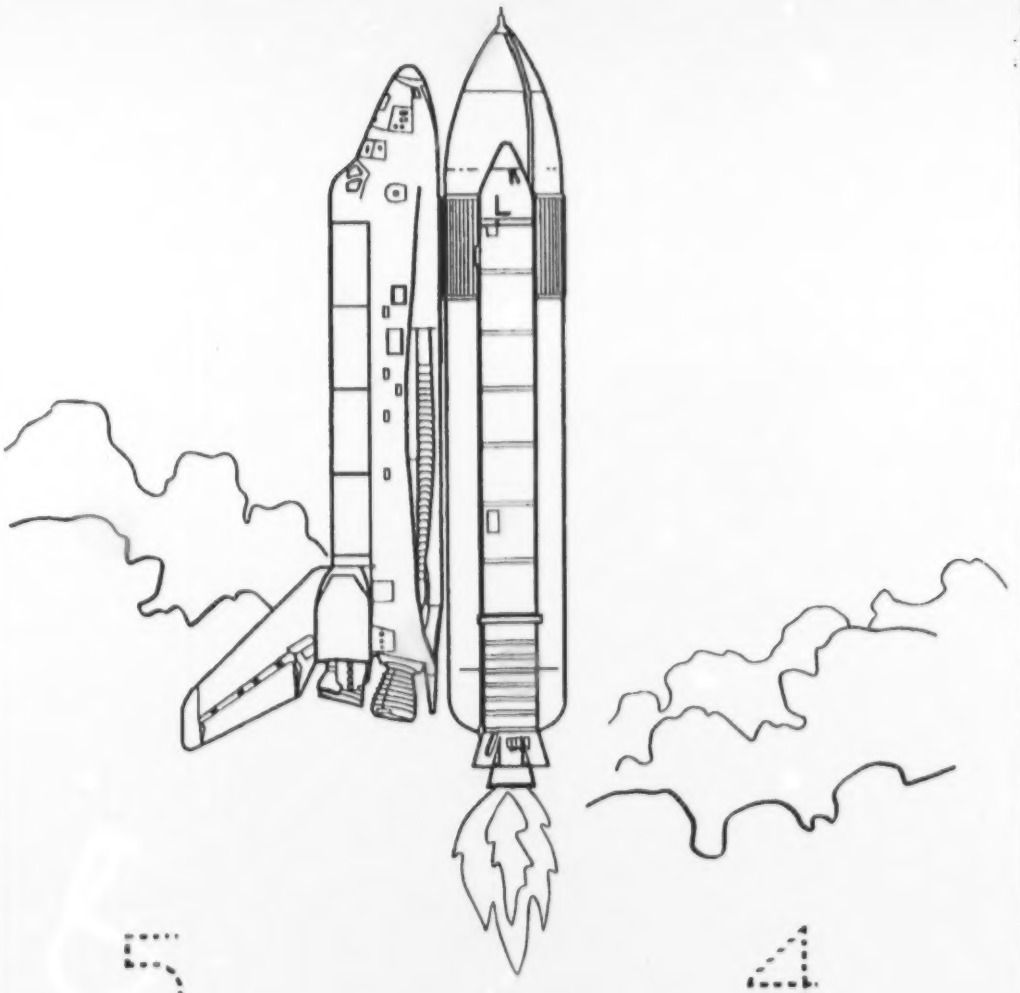


FIVE



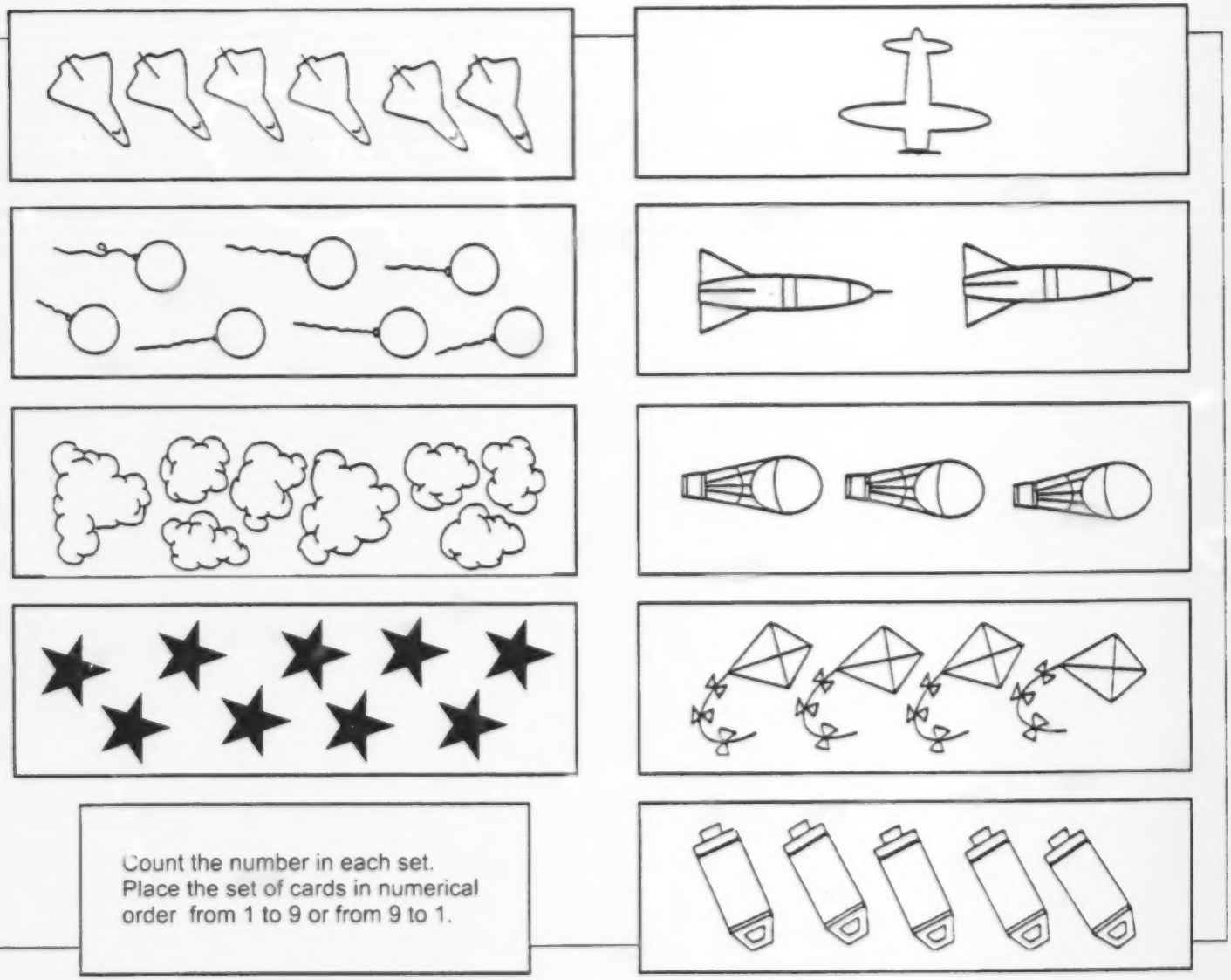
FOUR

BLAST-OFF!!!

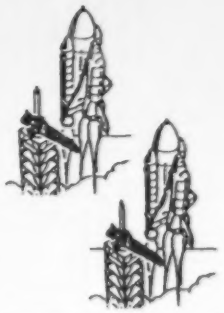


5 4

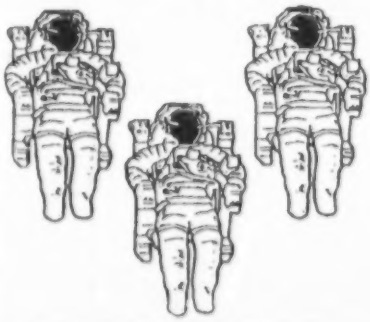
3 2 1

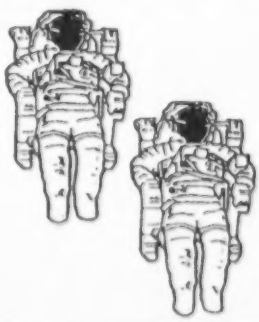

Count the number in each set.
Place the set of cards in numerical order from 1 to 9 or from 9 to 1.

TRACE THE NUMBERS



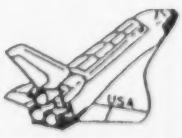
$$\begin{array}{r} 2 \\ +\ 2 \\ \hline 4 \end{array}$$

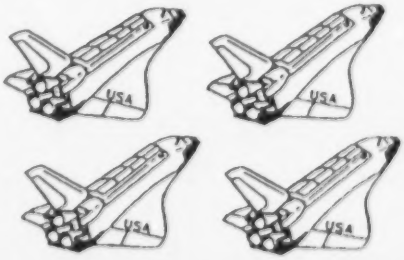




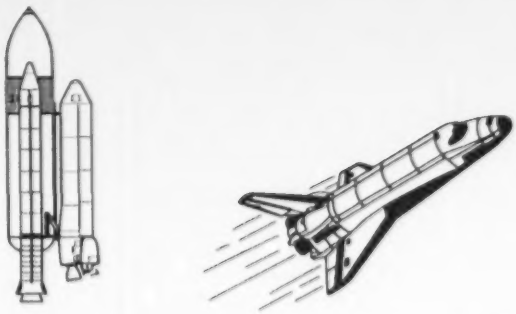
$$\begin{array}{r} 3 \\ +\ \cdots\cdots \\ \hline 5 \end{array}$$

$$\begin{array}{r} 2 \\ +\ \cdots\cdots \\ \hline 3 \end{array}$$



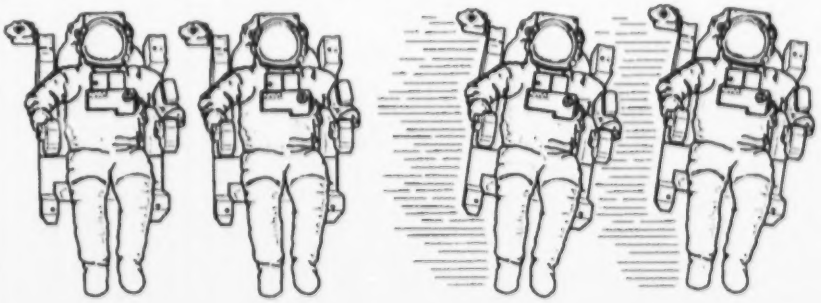


$$\begin{array}{r} 1 \\ +\ \cdots\cdots \\ \hline 5 \end{array}$$

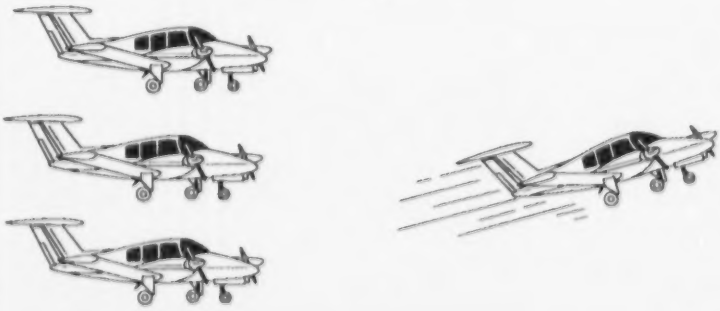


2
- 1
_____

3
- 2
_____

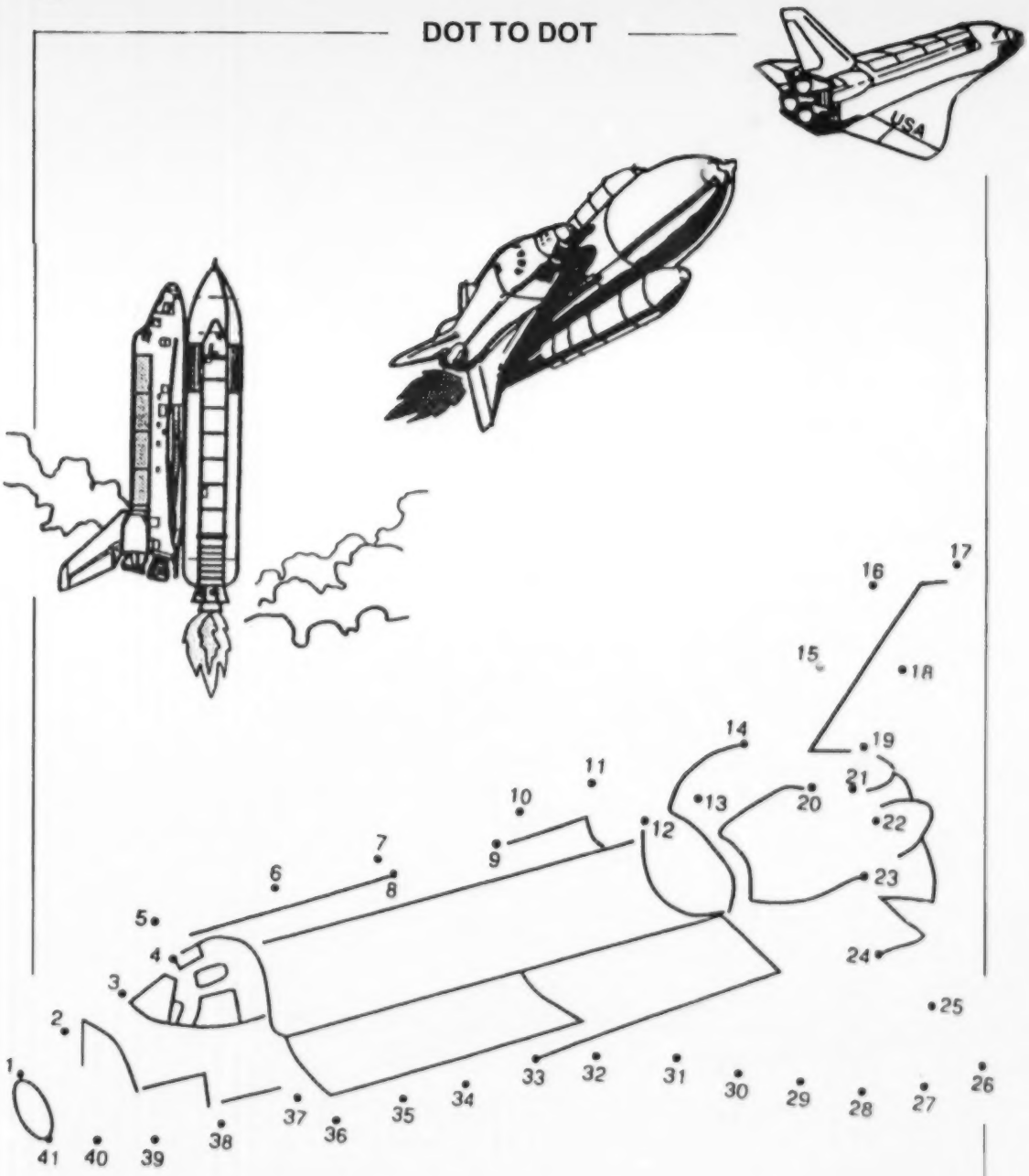


4
- 2
_____



4
- 1
_____

DOT TO DOT


USA
1
2
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4
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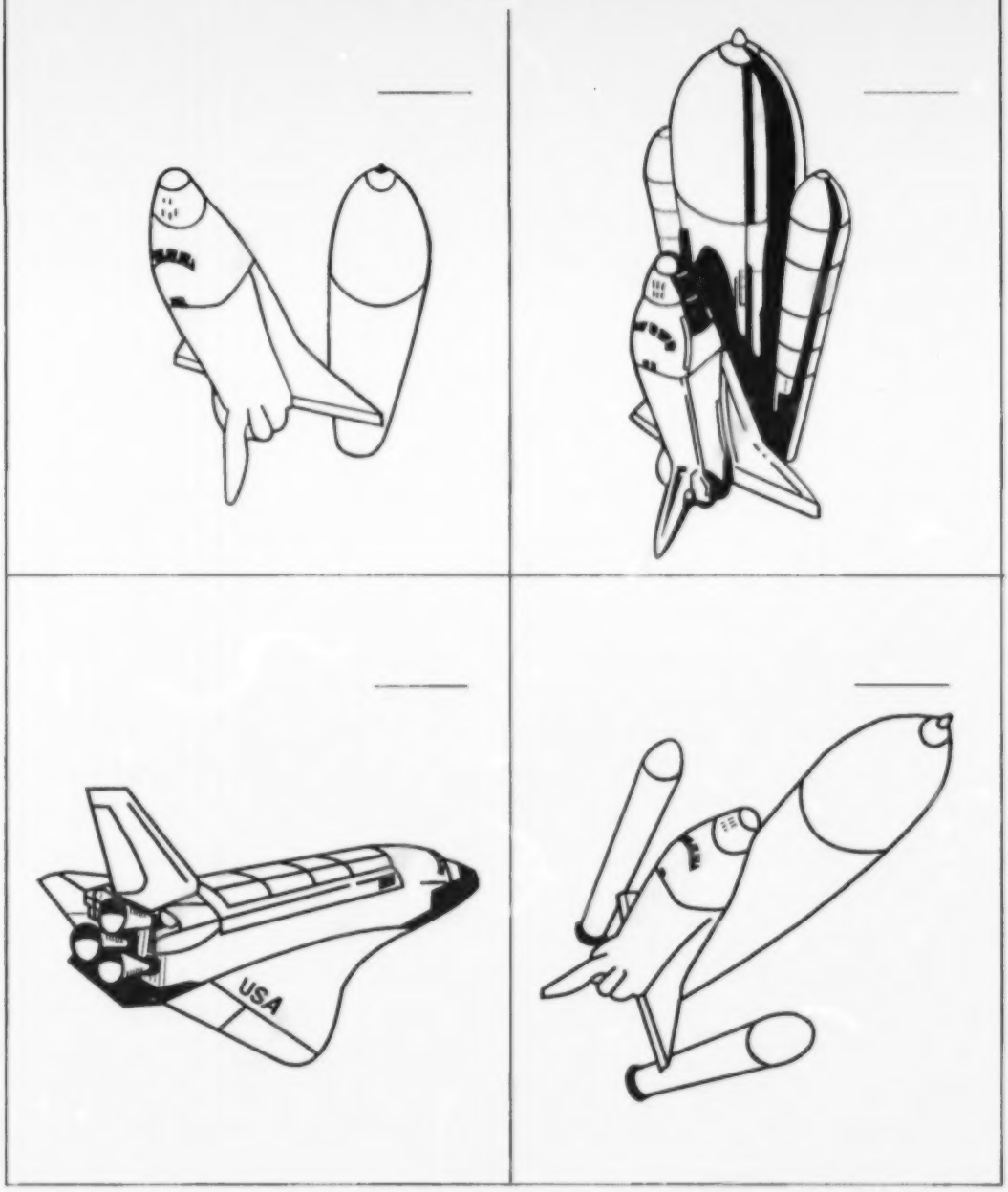
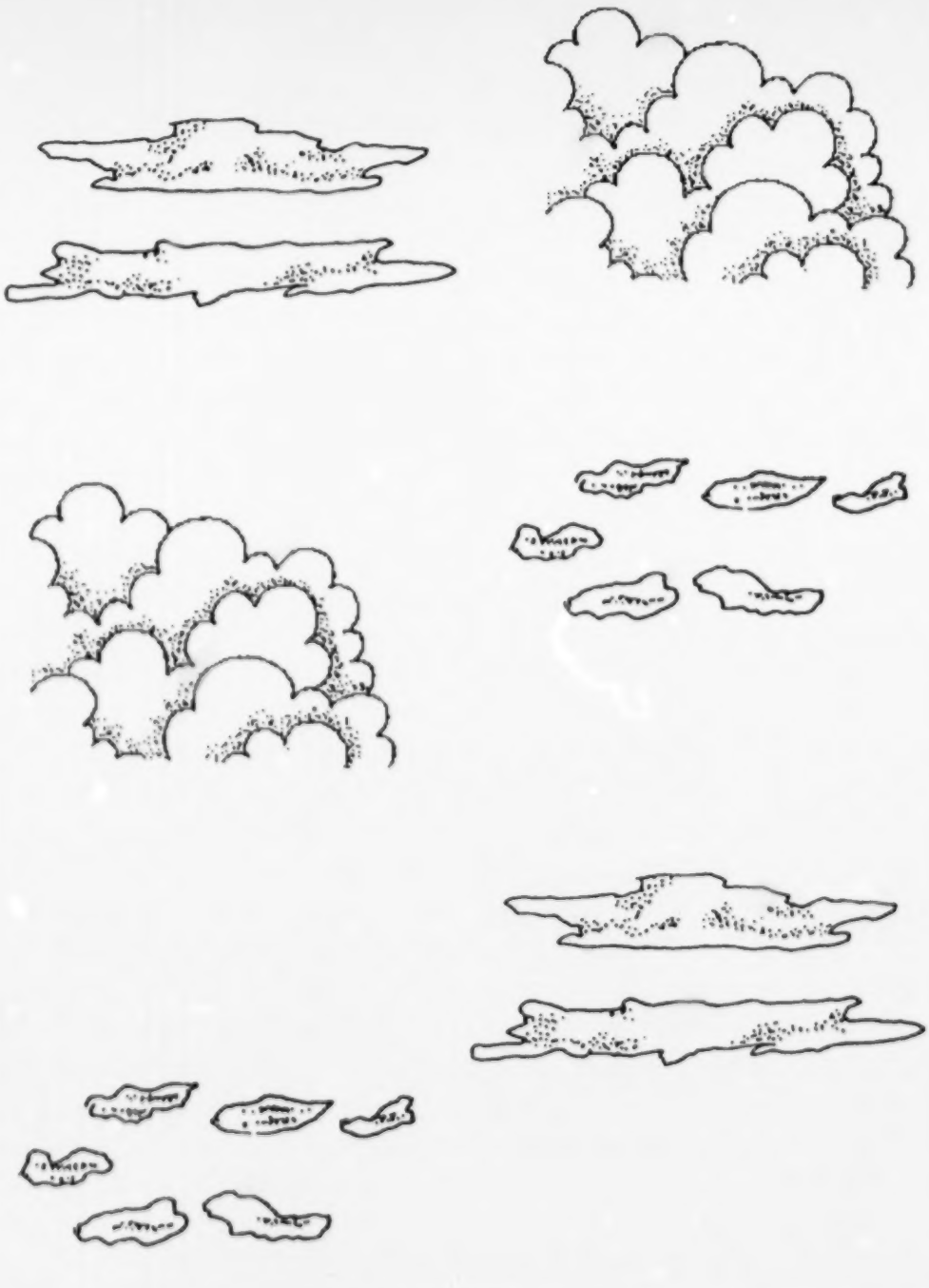
41

WHAT HAPPENED FIRST?



Write 1 on the line to show what happened first.
Write 2 on the line to show what happened second.
Write 3 on the line to show what happened third.
Write 4 on the line to show what happened fourth.

MATCH THE CLOUDS



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★ SENIOR MEMBERS ★ CITIZENS OF AMERICA ★

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